STRUCTURE OF MICROCARD

A01/1 = Structure of microcard

A03/1 = Special features, general information, safety precautions, testers and tools, test specifications, tightening torques

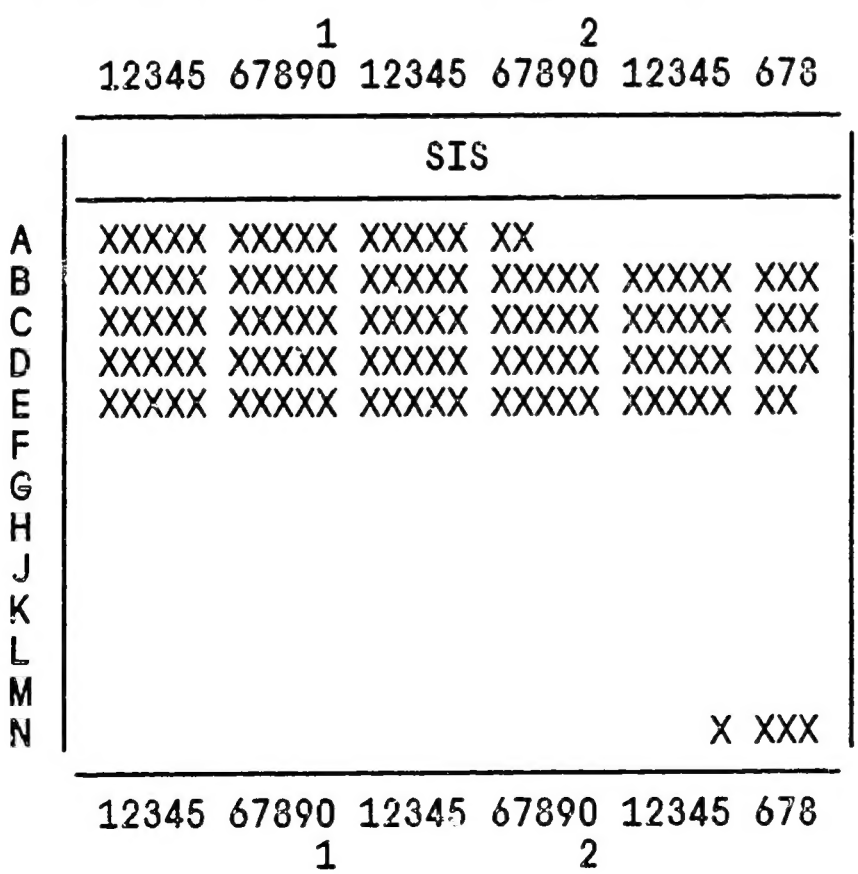
B01/1 = Testing

N18/1 = Index

N27/1 = Table of contents

N28/1 = Editorial note

Continue: A02/1 Fig.: A01/2



Continue: A02/1

STRUCTURE OF MICROCARD

The user prompting appears on every page, e.g.:
- Continue: B17/1
- Continue: B18/1 Fig.: B17/2

.../1 = Upper coordinate half
.../2 = Lower coordinate half

Continue: A03/1

INSTRUCTIONS FOR TESTING GOVERNORS

The test instructions contain all the necessary data and information required for the adjustment of type RQV-K governors.
Further information on:
- Test equipment and pump test bench
- Calibrating oil
- Tightening torques

can be taken from the instructions W-400/002.
Adjustment of the start-of-delivery sensor (FBG) is described in the RQV..K.. governor repair instructions.

Continue: A03/2

INSTRUCTIONS FOR TESTING GOVERNORS

The sequence of operations described corresponds to the sequence of the data in the test specifications. The delivery rates listed are always representative of the average value for all barrels of an injection pump. The prescribed difference in delivery applies to the individual barrels of a pump. Prescribed control-rod travels are set and measured with the appropriate control-rod-travel measuring device.

Continue: A04/1

INSTRUCTIONS FOR TESTING GOVERNORS

Check values for speeds, delivery rates and difference are given in parentheses. They only apply to the initial condition of an injection-pump assembly and are n e v e r to be used for re-adjustment.

Continue: A05/1

TEST SPECIFICATIONS

The test specifications for
fuel-injection equipment are contained
in the test specifications of the
microcards WP...
The general test specifications for
governors and timing devices alone
are listed in the microcards
WP 451 - WP 453.

Continue: A06/1

SAFETY PRECAUTIONS

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

1. Damaged fuel-injection pumps are not to be tested.
2. The tools, drive components and clamping parts prescribed in these instructions are to be employed to avoid the danger of accident. Damage to the unit under test and incorrect settings may also be the consequence.

Continue: A06/2

SAFETY PRECAUTIONS

3. Install test-pressure lines perpendicularly on delivery-valve holder and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: A07/1

SAFETY PRECAUTIONS

4. Test pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipples, and test pressure lines with impermissible bending radii are to be replaced (refer to W-400/000: "Test benches, test equipment and instructions on testing fuel-injuection pumps"). If use is made of damaged test pressure lines for test purposes, this will result in adjustment errors. High-pressure calibrating oil can emerge through a damaged line and result in injury.

Continue: A07/2

SAFETY PRECAUTIONS

5. Before the fuel-injection pump is driven by means of the injection-pump test bench, the pump should be checked by hand for freedom of movement. If the pump drive or moving pump parts has/have siezed up and the injection pump is driven, this may result in further damage to the injection pump and test bench.

Continue: A08/1

SAFETY PRECAUTIONS

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are to be taken from the appropriate test-specification sheet.

Continue: A08/2

SAFETY PRECAUTIONS

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: A09/1

TEST-BENCH ACCESSORIES
PE(S)..A.. pump assemblies

For clamping:

– Clamping frame	1 688 030 044
– Universal clamping bracket	1 688 010 010
or	1 688 010 124
or	1 688 010 129
– Centering bracket	1 688 010 033
– Intermediate plate	1 682 308 010
– Clamping flange	1 685 720 017
– Clamping flange	1 685 720 014

Continue: A09/2

TEST-BENCH ACCESSORIES
PE(S)..A.. pump assemblies

– Reduction ring	
Diameter 72 mm	1 680 103 007
Diameter 80 mm	1 680 202 004
Diameter 85 mm	1 680 202 005
Diameter 76.2 mm	1 680 202 017

Continue: A10/1

TEST-BENCH ACCESSORIES
PE(S)..A.. pump assemblies

For driving

- Coupling half, taper
  17 mm diameter 1 416 430 022
  20 mm diameter 1 416 430 024
  Puller KDEP 1557

Continue: A10/2

TEST-BENCH ACCESSORIES
PE(S)..A.. pump assemblies

For measurement

- Control-rod-travel
  measuring device 1 688 130 095
- Control-rod-travel
  measuring device 1 688 130 130
- Control-rod-travel
  measuring device 1 688 132 005
- Control-rod-travel
  measuring device 1 681 440 009
- Dial indicator 1 687 233 015
- Measuring frame
  Frame dimension 35 mm, 11 mm
  measuring element 1 682 329 038
  Frame dimension 37.1 mm, 11 mm
  (Mack) and 13 mm measuring
  element 1 682 329 081

Continue: A11/1

TEST-BENCH ACCESSORIES
PE(S)..A.. pump assemblies

- Governor adjusting tool 1 681 440 006
  or
- Governor adjusting tool 1 688 130 183
- Pressure reducer for compressed air 0...4 bar
  commercially available
- Pressure gauge 0...1.6 bar, quality class 1.0, scale division 0.01
  commercially available

Continue: A11/2

TEST-BENCH ACCESSORIES
PE(S)..A.. pump assemblies

For adjustment

- Socket wrench set KDEP 1047
- Socket wrench set KDEP 1048
- Box wrench KDEP 1546

Continue: A12/1

TEST-BENCH ACCESSORIES
PE(S)..MW.. pump assemblies

For clamping

– Clamping frame	1 688 030 150
– Clamping frame	1 688 030 161
– Universal clamping bracket	1 688 010 124
or	1 688 010 129
– Clamping flange	1 685 720 017
– Reduction ring	1 680 202 005

Continue: A12/2

TEST-BENCH ACCESSORIES
PE(S)..MW.. pump assemblies

For driving

– Coupling half, taper	
17 mm diameter	1 416 430 022
20 mm diameter	1 416 430 024
25 mm diameter	1 416 430 026

Continue: A13/1

TEST-BENCH ACCESSORIES
PE(S)..MW.. pump assemblies
For measurement

- Control-rod-travel measuring device	1 680 130 130
with tube fitting	1 683 350 065
with drive pin	1 683 201 013
or	
- Control-rod-travel measuring device	1 680 130 130
with tube fitting	1 683 350 064
with drive pin	1 683 201 013
- Control-rod-travel measuring device	1 688 130 095
- Dial indicator	1 687 233 015
- Governor adjusting tool	0 681 440 006
or	
- Governor adjusting tool	0 688 130 183

Continue: A13/2

TEST-BENCH ACCESSORIES
PE(S)..MW.. pump assemblies

- Adjuster with pressure gauge	1 688 130 132
- Measuring frame	
Frame dimension 35 mm, 11 mm measuring element	1 682 329 038
Frame dimension 37.1 mm, 11 mm (Mack) and 13 mm measuring element	1 682 329 081
- Pressure reducer for compressed air with pressure gauge 0...4 bar	commercially available
- Pressure gauge 0...1.6 bar, quality class 1.0, scale division 0.05	commercially available

Continue: A14/1

TEST-BENCH ACCESSORIES
PE(S)..MW.. pump assemblies

For adjustment

– Socket wrench set	KDEP 1047
– Socket wrench set	KDEP 1048
– Socket wrench	KDEP 1546

Continue: A14/2

TEST-BENCH ACCESSORIES
PE(S)..P.. pump assemblies

For clamping

– Clamping frame	1 688 030 141
– Clamping frame	1 688 030 153
– Support frame	1 688 030 167
– Universal clamping bracket	1 688 010 124
or	1 688 010 129
– Clamping flange	1 685 720 060
– Clamping flange	1 685 720 159

Continue: A15/1

TEST-BENCH ACCESSORIES
PE(S)..P.. pump assemblies

For driving

- Coupling half, taper	
25 mm diameter	
Claw width 12 mm	1 416 430 026
Claw width 16 mm	1 416 430 030
30 mm diameter	1 686 430 034
short fastening	
thread	1 686 430 032
35 mm diameter	1 686 430 038
- Puller	KDEP 1557

Continue: A15/2

TEST-BENCH ACCESSORIES
PE(S)..P.. pump assemblies

For measurement

- Control-rod-travel	
measuring device	1 688 130 130
with accessories	1 687 000 053
	1 687 000 061
- Control-rod-travel	
measuring device	1 680 130 130
- Bushing, short	1 680 362 019
- Bushing, long	1 683 350 016
- Control-rod-travel	
measuring device	1 688 130 095
- Dial indicator	1 687 233 015
- Governor adjusting	
tool	1 681 440 006
or	
- Governor adjusting	
tool	0 688 130 183

Continue: A16/1

TEST-BENCH ACCESSORIES
PE(S)..P.. pump assemblies

- Measuring frame
  Frame dimension 35 mm, 11 mm
  measuring element 1 682 329 038
  Frame dimension 37.1 mm, 11 mm
  (Mack) and 13 mm
  measuring element 1 682 329 081
- Adjuster with 1 688 130 132
  pressure gauge

Continue: A16/2

TEST-BENCH ACCESSORIES
PE(S)..P.. pump assemblies

- Pressure reducer for
  compressed air with
  pressure gauge 0...4 bar
  commercially available
- Pressure gauge
  0...1.6 bar,
  quality class 1.0
  scale division 0.01
  commercially available

Continue: A17/1

TEST-BENCH ACCESSORIES
PE(S)..P.. pump assemblies

For adjustment

– Socket wrench set	KDEP 1047
– Socket wrench set	KDEP 1048
– Socket wrench	KDEP 1546

Continue: B01/1

PREPARATION FOR TESTING
* Safety precautions:

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

1. Damaged fuel-injection pumps are not to be tested.

Continue: B01/2

PREPARATION FOR TESTING
* Safety precautions

2. Use is to be made of the tools, drives and clamping elements prescribed in these instructions as otherwise there would be a danger of accident.
Furthermore, damage to the unit under test and incorrect settings could result.

Continue: B02/1

PREPARATION FOR TESTING
* Safety precautions

3. Install test-pressure lines perpendicularly on delivery valve holders and calibrating nozzle-holder assemblies. Non-observance can lead to damage to the test-pressure-line connecting nipple. A defective connecting nipple may lead to the emergence of high-pressure calibrating oil and the possibility of injury.

Continue: B02/2

PREPARATION FOR TESTING
* Safety precautions

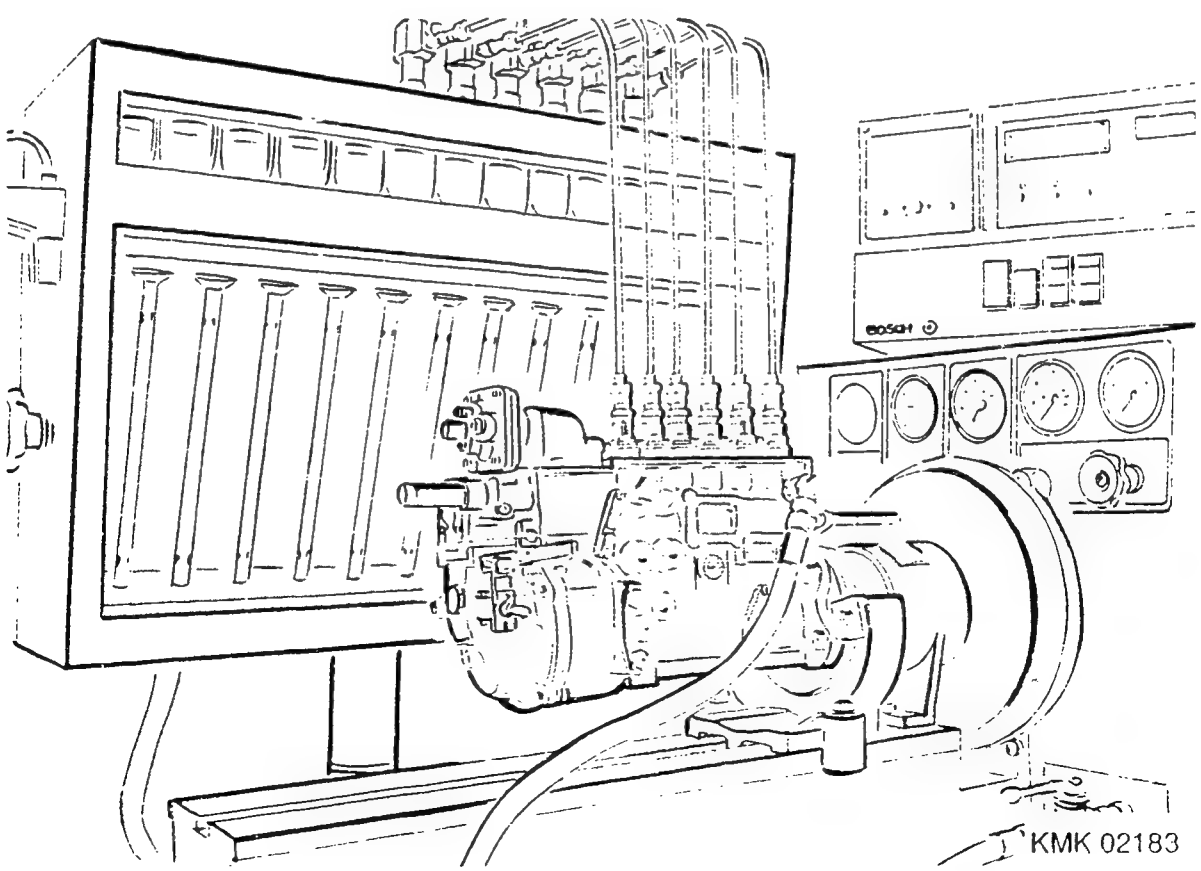
4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipples, as well as test-pressure lines with impermissible bending radii, are to be replaced (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A defective line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: B03/1

PREPARATION FOR TESTING

Clamp fuel-injection pump in position with prescribed parts.
Tighten screw connections to prescribed tightening torques (refer to W-400/002).

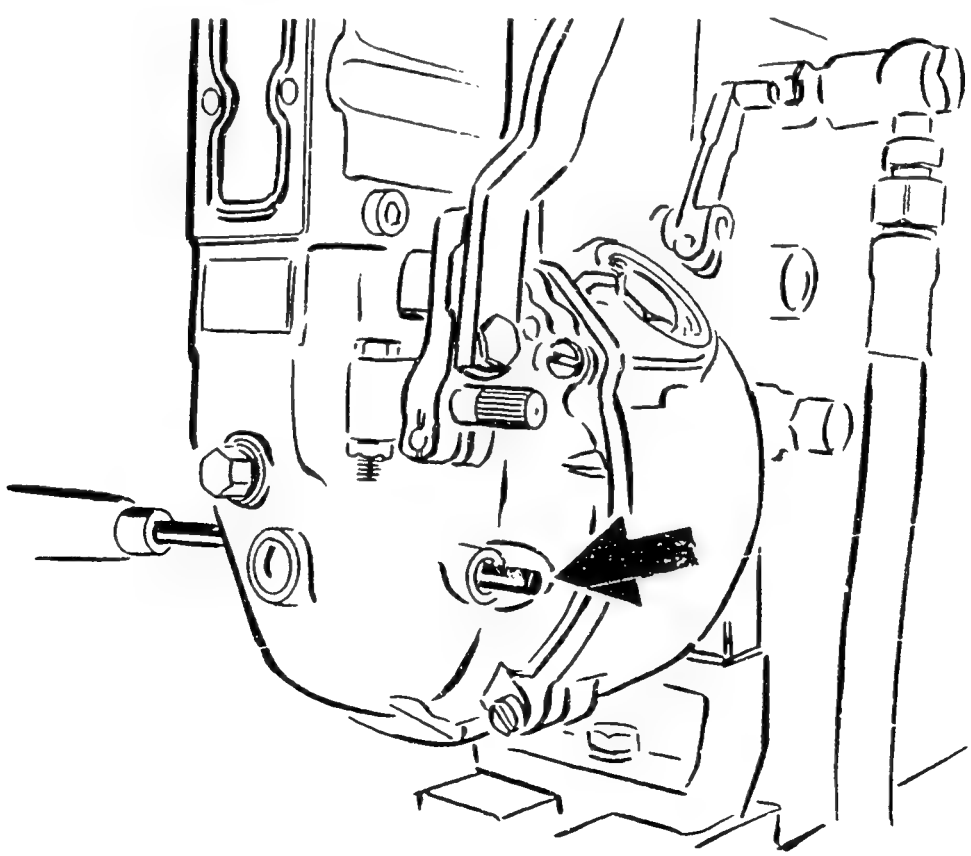
Continue: B04/1 Fig.: B03/2



PREPARATION FOR TESTING

Remove boost-pressure-dependent full-load stop (LDA).
Remove guide pin for swivelling lever (picture, arrow).
Attach control-rod-travel measuring device.

Continue: B05/1 Fig.: B04/2

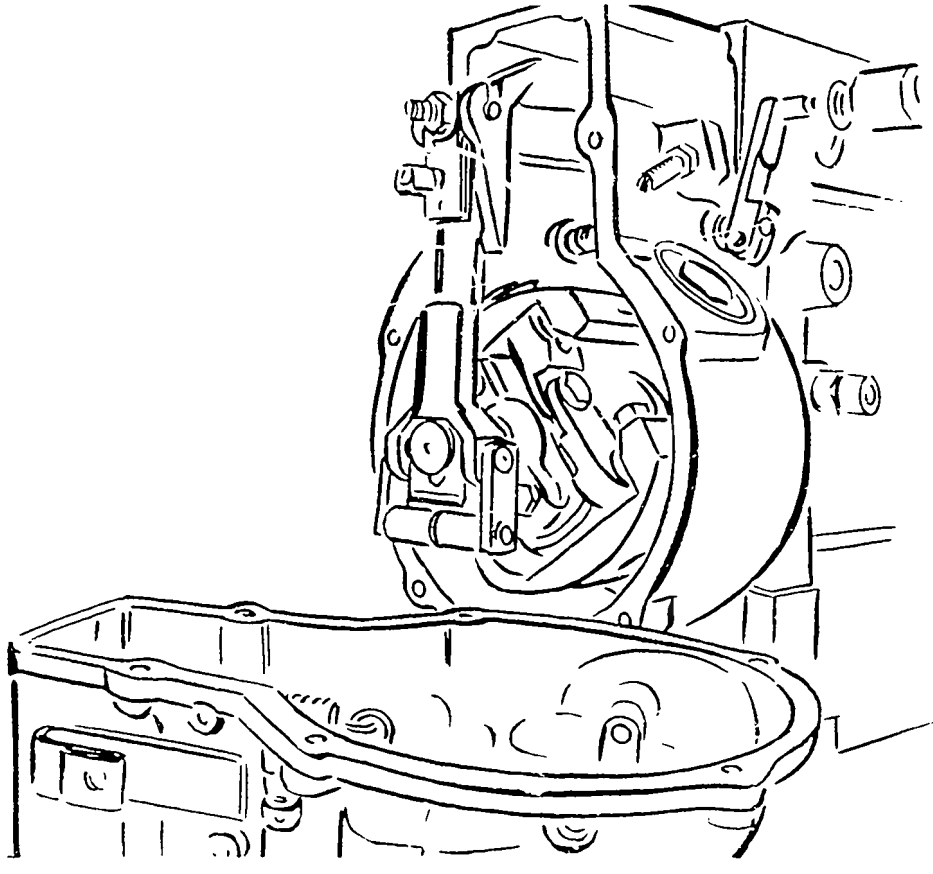


KMK 02184

PREPARATION FOR TESTING

Remove governor cover and catch lubricating oil which emerges.
Remove swivelling lever.
Remove coupling pin. Remove link and sliding bolt.
Fix sliding bolt with coupling pin in flyweight assembly.

Continue: B06/1 Fig.: B05/2



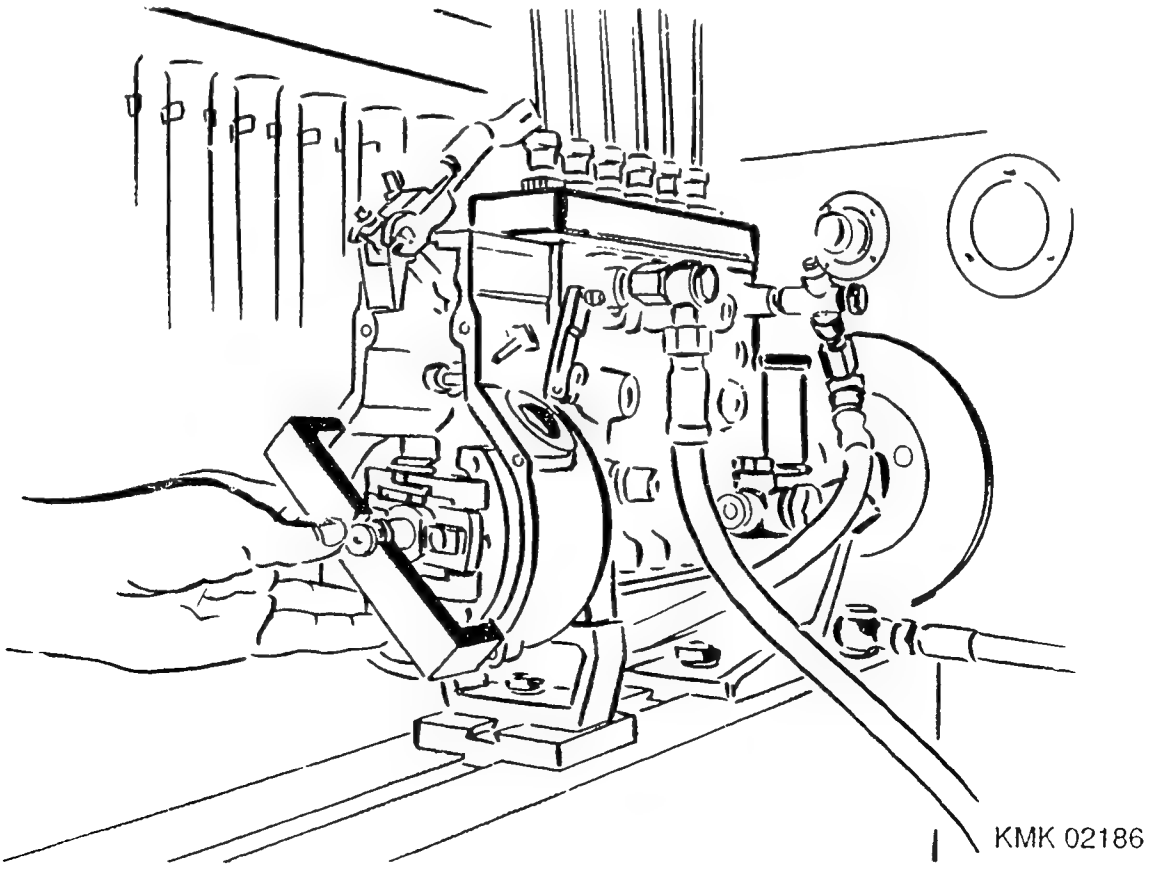
KMK 02185

CALIBRATING POSITION OF LINK

The basic dimension from the center of the link to the housing support (without seal) is 34.8...35.2 mm (measuring element 11 mm).
For other measuring elements, the differing data are to be taken from the respective test-specification sheet.

Frame
Frame dimension 35 mm, 11 mm measuring element 1 682 329 038
Frame dimension 37.1 mm, 11 mm (Mack) and 13 mm measuring element 1 682 329 081

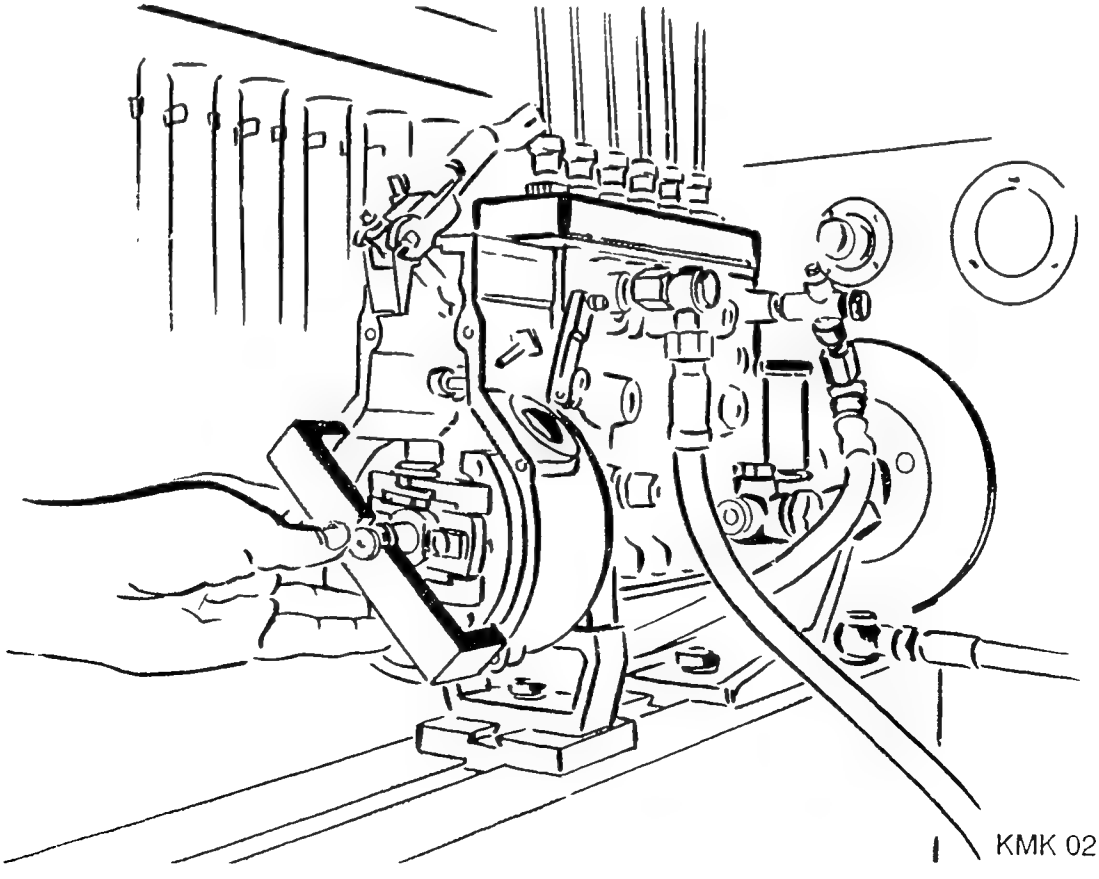
Continue: B07/1 Fig.: B06/2



CALIBRATING POSITION OF LINK

Pull sliding bolt such that flyweights make internal contact.
In this position, the measuring frame should engage (without seal) in the link guide with no play.
If necessary, alter length of sliding bolt by turning adjusting screw.

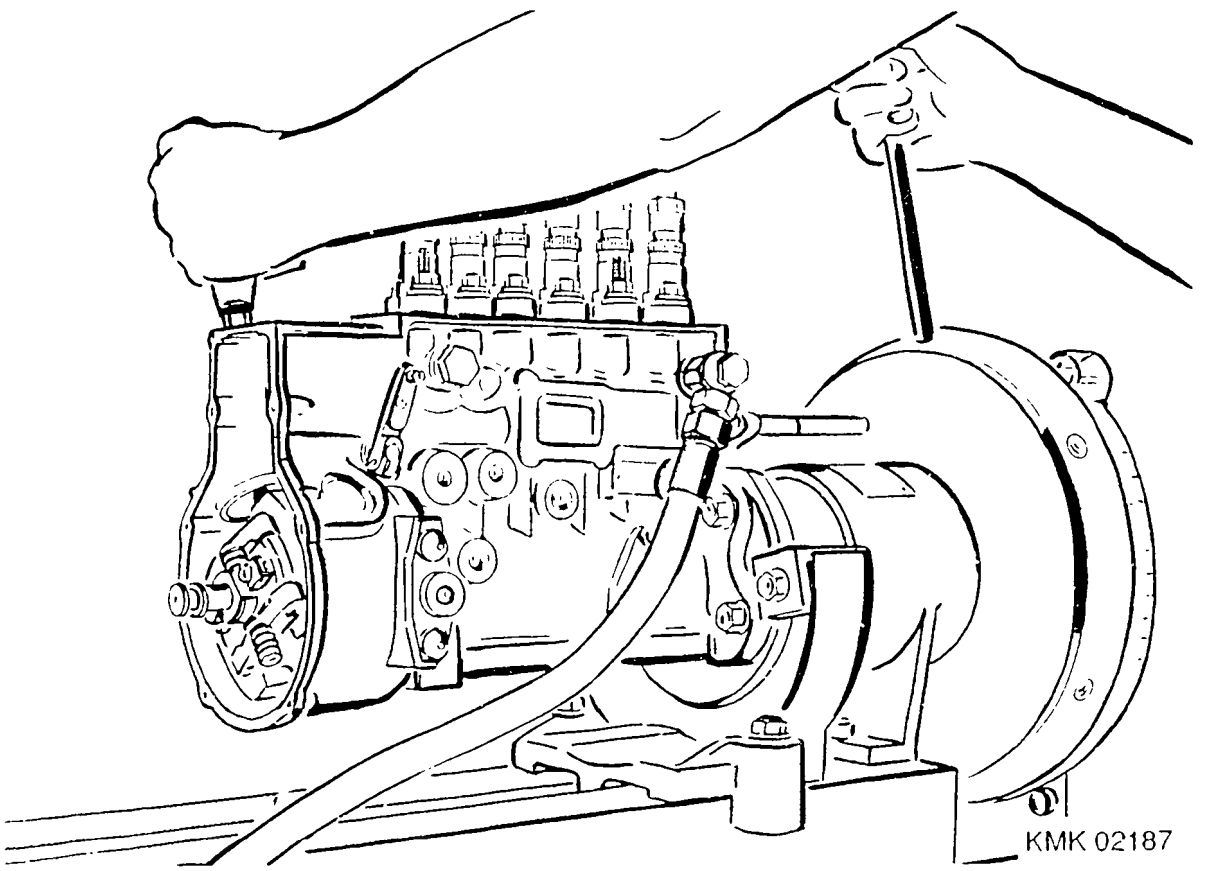
Continue: B08/1 Fig.: B07/2



CHECKING PLAY OF RUBBER BUFFERS

Block flyweights with screwdriver to prevent turning and turn flywheel of test bench in both directions.
The measured play may be 10...25 Grad.
Replace rubber buffers if stated play is exceeded.

Continue: B09/1 Fig.: B08/2



MEASURING SLIDING-SLEEVE TRAVEL
* Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

Continue: B09/2

MEASURING SLIDING-SLEEVE TRAVEL
* Safety precautions

5. The fuel-injection pump is to be checked by hand for freedom of movement before driving it with the injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are stuck, and the injection pump is nevertheless driven, this may result in further damage to the fuel-injection pump and to the test bench.

Continue: B10/1

MEASURING SLIDING-SLEEVE TRAVEL
* Safety precautions

6. The units under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are outlined in the appropriate test-specification sheet.

Continue: B10/2

MEASURING SLIDING-SLEEVE TRAVEL
* Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

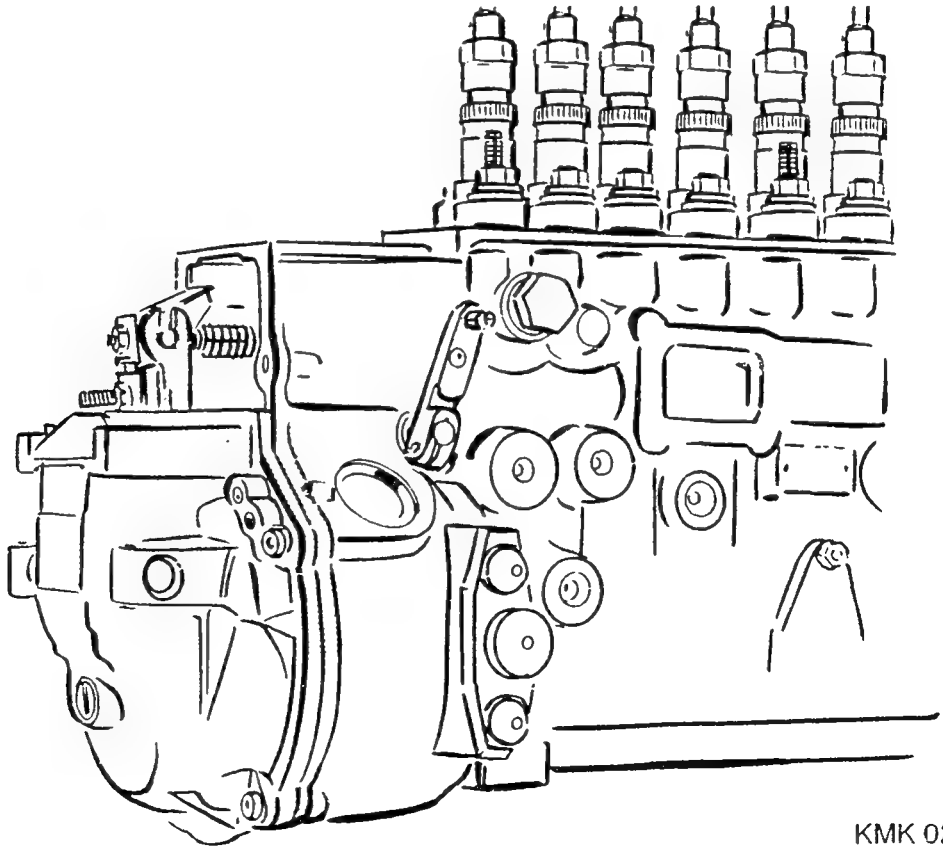
8. Goggles are to be worn during testing.

Continue: B11/1

MEASURING SLIDING-SLEEVE TRAVEL

Fix control-rod-travel measuring device at approx. 9 mm control-rod travel.
Pour in lubricating oil.

Continue: B12/1 Fig.: B11/2



KMK 02188

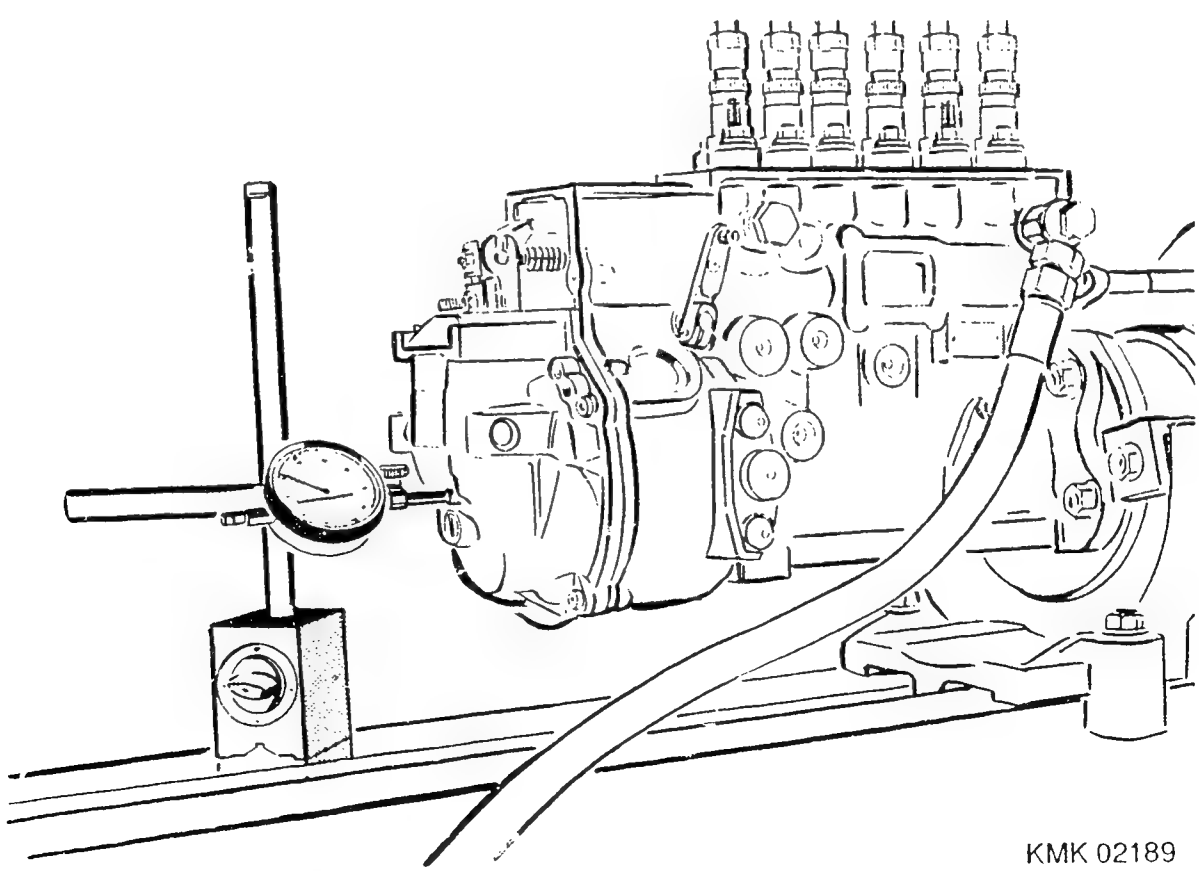
MEASURING SLIDING-SLEEVE TRAVEL

The sliding-sleeve travel as per the test-specification sheet can be measured with the control-rod-travel measuring device 1 688 130 095 and the dial indicator 1 687 233 015.

The magnetic base of the dial indicator makes contact with the link. Pretension dial indicator approx. 20mm at speed n = 0.

Set scale of dial indicator to zero; flyweights must make reliable contact.

Continue: B13/1 Fig.: B12/2



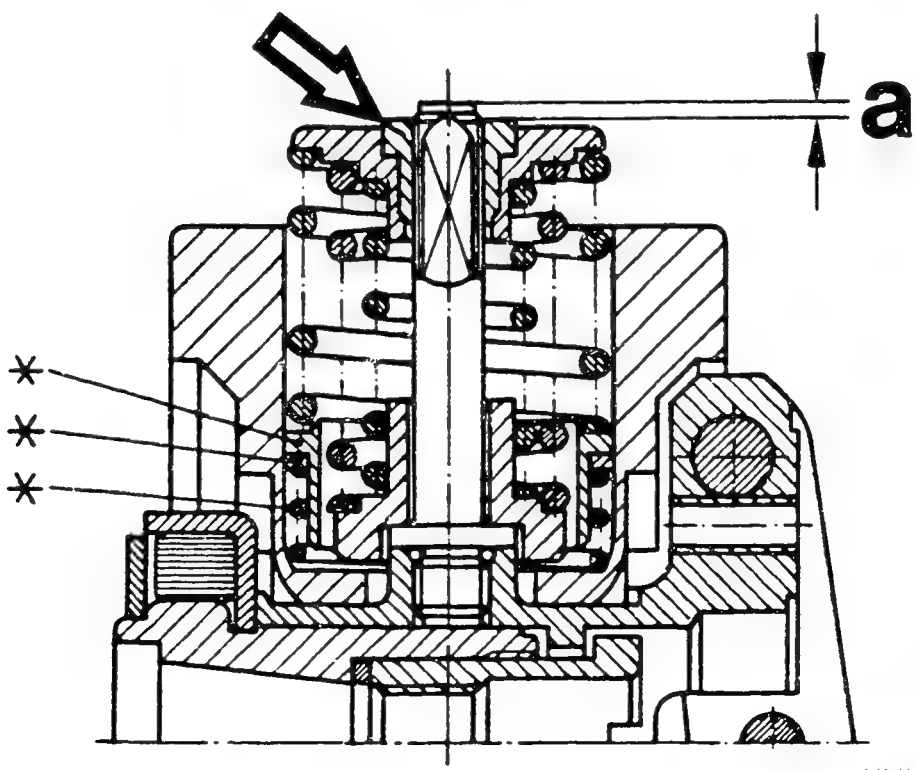
KMK 02189

MEASURING SLIDING-SLEEVE TRAVEL

Arrow = Adjusting nut
a = Projection of threaded pin with respect to adjusting nut
* = Additional parts for governors with double idle springs

Before measuring flyweight travel, the projection "a" of both flyweights must be preset to approx. 1 mm. Make sure the adjusting nuts have engaged.
Drive pump at speeds indicated in test-specification sheet. Read off sliding-sleeve travel and compare to test-specification sheet.

Continue: B14/1 Fig.: B13/2



KMK 02190

MEASURING SLIDING-SLEEVE TRAVEL

If the prescribed values are not attained, the initial tension of the flyweight springs must be altered appropriately by turning the adjusting nut.
Tensioning springs produces a shorter sliding-sleeve travel (endeavor to achieve upper tolerance); the threaded pins of the flyweights must, however, be flush or project a maximum of 2.5 mm.
Tension governor springs equally on both sides (one detent difference is permitted; max. 2 detents with fine locking).

Continue: B14/2

MEASURING SLIDING-SLEEVE TRAVEL

Note:
Once this adjustment has been made, the initial tension of the governor spring must not be altered.

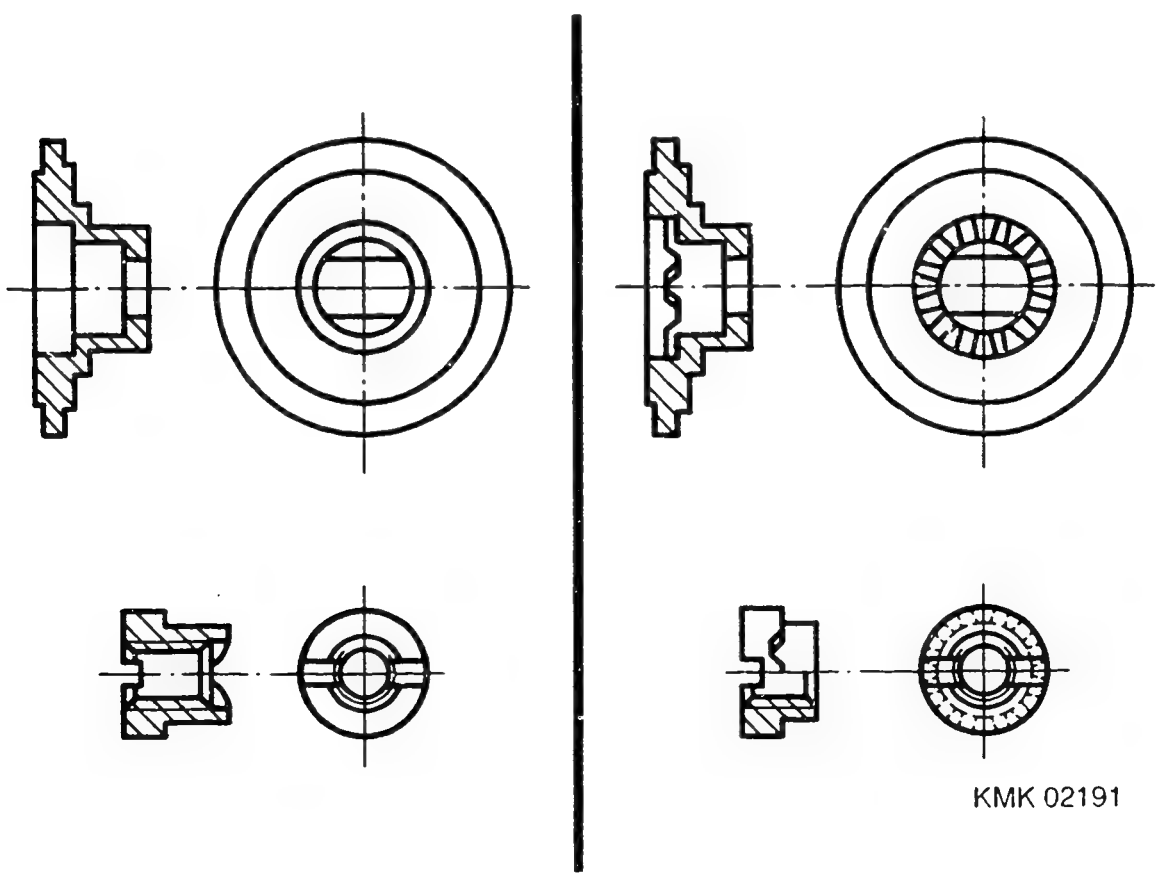
Continue: B15/1

MEASURING SLIDING-SLEEVE TRAVEL

	Old	New
Spring seat	1 420 520 002	2 420 520 001
Spring seat	1 420 520 003	2 420 520 002
Round nut	1 423 345 020	2 423 345 005

Adjustment instructions:
To reduce clearance and for more exact adjustment, the upper spring seat and the round nut were provided with fine detents.
Old and new versions are n o t to be installed together.
Always only fit spring seats and round nuts from one version.

Continue: B16/1 Fig.: B15/2



KMK 02191

MEASURING SLIDING-SLEEVE TRAVEL

Remove control-rod-travel measuring device 1 688 130 095 and remove cut-out governor cover; catch lubricating oil which emerges.

Loosen clamping screw at control-rod-travel measuring device.
Set control-rod-travel dial indicator to zero once control rod is in contact with mehcanical shutoff stop.

Continue: B17/1

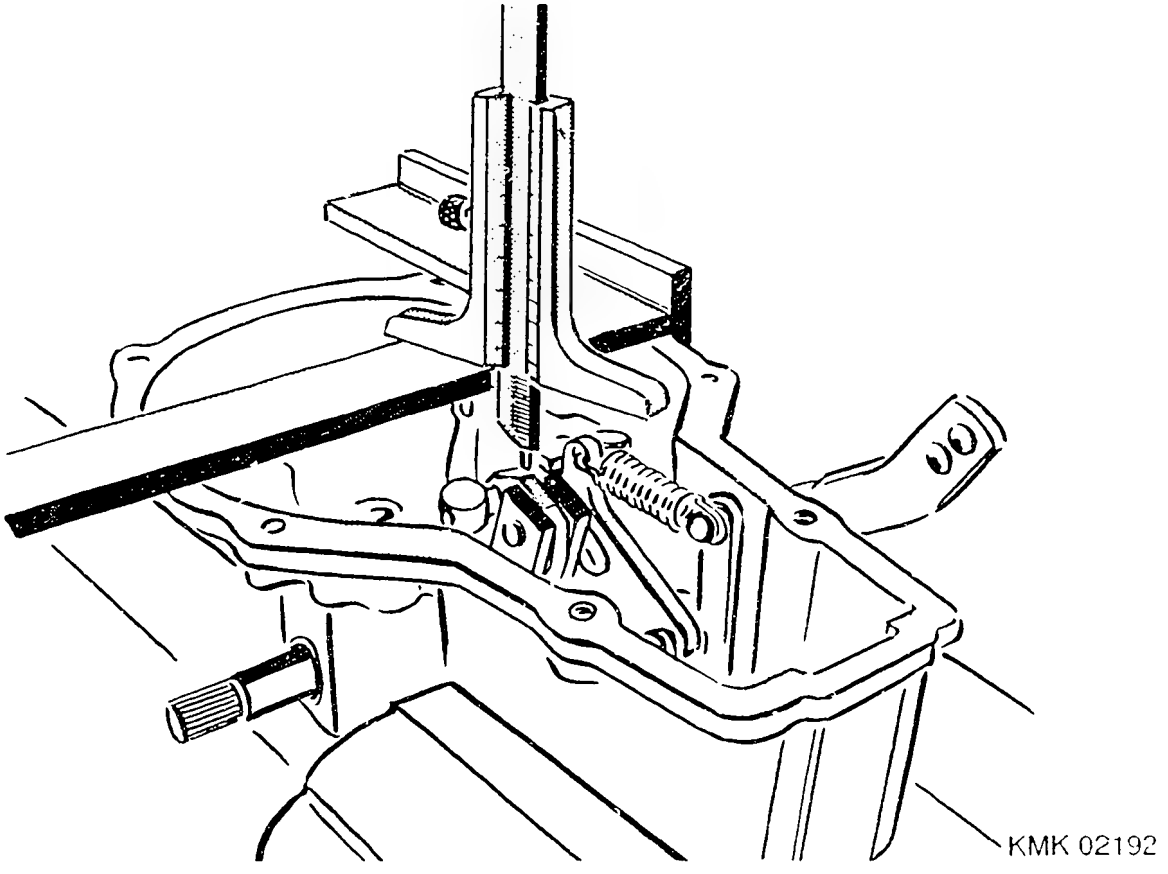
CALIBRATING PLATE CAM

Turn control lever round so that stop screw does not make contact. Move control lever to full load. Guide pin of linkage lever makes contact at end of cam path. Place ruler in position. Specify dimension from cover sealing surface (without seal) to center of guide pin:
11 mm measuring element = 23.9... 24.1 mm

13 mm measuring element and
11 mm measuring element (Mack)
= 26.1... 26.3 mm

Adjustment is effected by way of shims beneath the plate-cam stop.

Continue: B18/1 Fig.: B17/2



CALIBRATING PLATE CAM

Re-install control lever in original position. Position control-lever stop screw such that control lever just makes contact with stop screw when linkage lever makes contact at end of cam path. Screw out stop screw 1/4 of a turn; 1...1 1/4 turns for 11 mm measuring element (Mack).

Note: If adjustment is not made, control lever may move to larger angular position. This damages the control mechanism.

Governors with intermediate-speed stop as of Coordinate B19/1

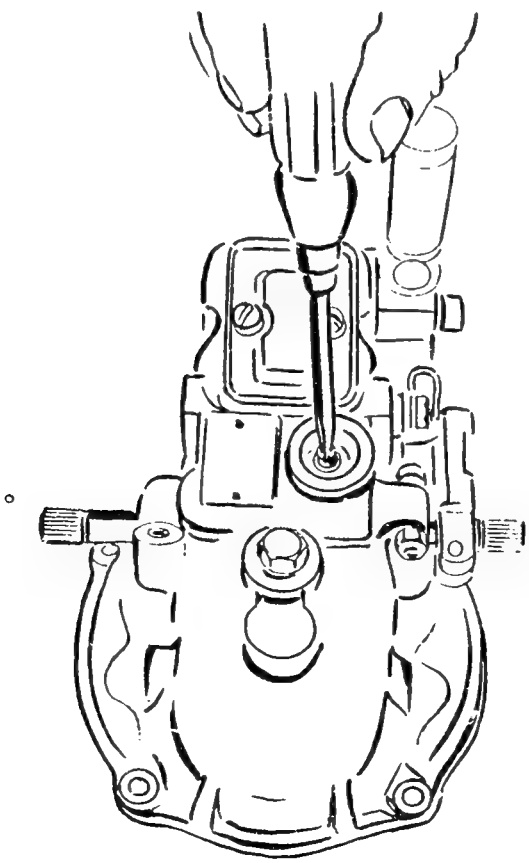
Continue: B20/1

CALIBRATING PLATE CAM
* Governor with intermediate-speed stop (ZDE)

Loosen lock nut with KDEP 1546.
Remove idle adjustment screw and lock nut.

Note:
If the idle adjustment screw is not removed, the position of the control lever cannot be adjusted.

Continue: B20/1 Fig.: B19/2



KMK 02193

CHECKING PLAY OF GOVERNOR PARTS
* Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

1. Damaged fuel-injection pumps are not to be tested.

Continue: B20/2

CHECKING PLAY OF GOVERNOR PARTS
* Safety precautions

2. Use is to be made of the tools, drives and clamping elements prescribed in these instructions as otherwise there would be a danger of accident.
Furthermore, damage to the unit under test and incorrect settings could result in the event of non-observance of the above.

Continue: B21/1

CHECKING PLAY OF GOVERNOR PARTS
* Safety precautions

5. Check fuel-injection-pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are stuck, and the injection pump is nevertheless driven, this may lead to further damage to the injection pump and to the test bench.

Continue: B21/2

CHECKING PLAY OF GOVERNOR PARTS
* Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: B22/1

CHECKING PLAY OF GOVERNOR PARTS
* Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

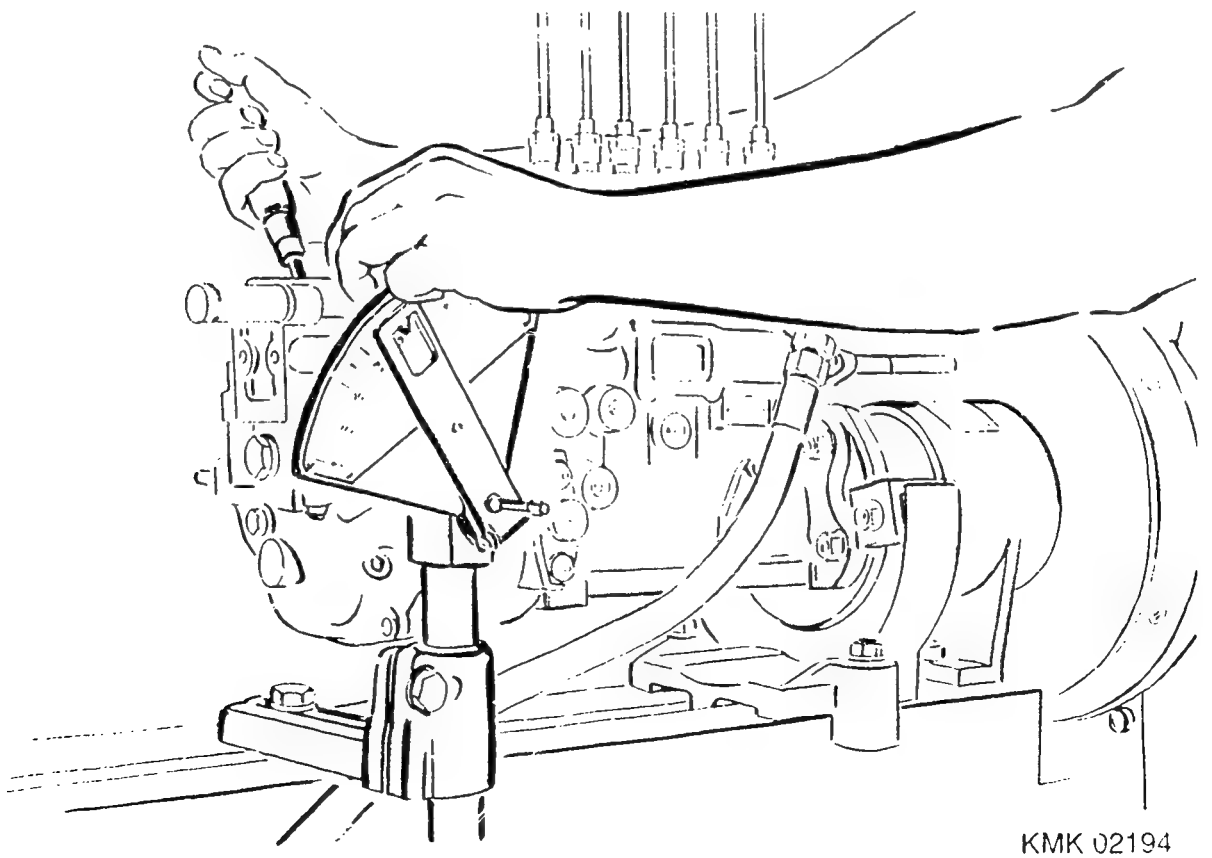
8. Goggles are to be worn during testing.

Continue: B23/1

CHECKING PLAY OF GOVERNOR PARTS

Fit governor cover.
Pour in lubricating oil.
Install governor adjusting tool
0 681 440 006 or 1 688 130 130.
Set 2 mm control-rod travel with
control lever and secure control rod.
Over-compress governor springs by
hand. The play of the control lever
must not be more than 2 Grad on the
protractor.
Do n o t over-compress
spring-mounted bracket.
Detach control-rod-travel measuring
device.

Continue: B24/1 Fig.: B23/2

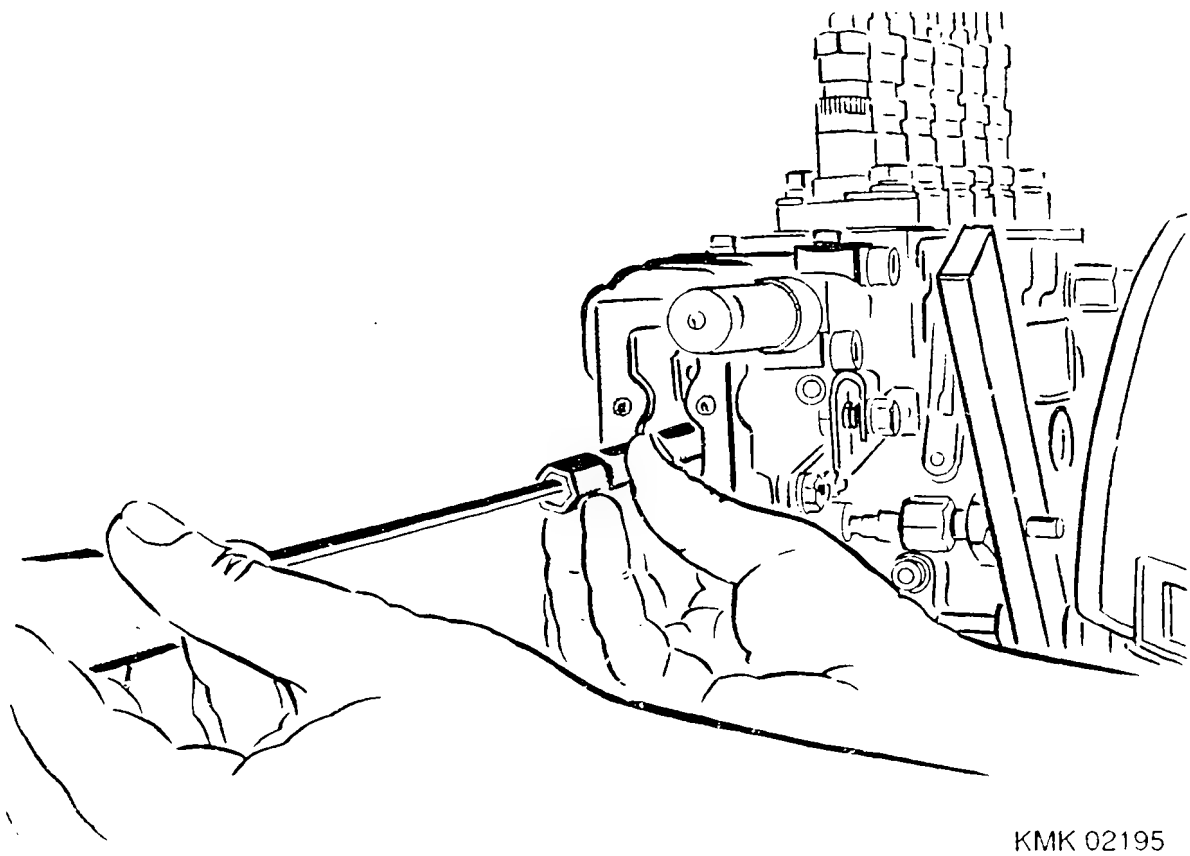


KMK 02194

CHECKING PLAY OF GOVERNOR PARTS
* Adjusting fine correction (full load)

Set speed n = 100 1/min.
Set approx. 10 mm control-rod travel with control lever and secure control lever.
Loosen fine-correction lock nut and screw out adjusting screw as far as it will go.
Set scale of control-rod-travel dial indicator to zero.
Screw in fine-correction adjusting screw and take reading off control-rod-travel dial indicator. Move adjusting screw to center position and secure.

Continue: B25/1 Fig.: B24/2



KMK 02195

CHECKING PLAY OF GOVERNOR PARTS
* Adjusting fine correction (full load)

Note:
Do not press on adjusting screw when taking control-rod travel reading.

Continue: B26/1

MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION
* Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: B26/2

MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION

* Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: B27/1

MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION

* Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

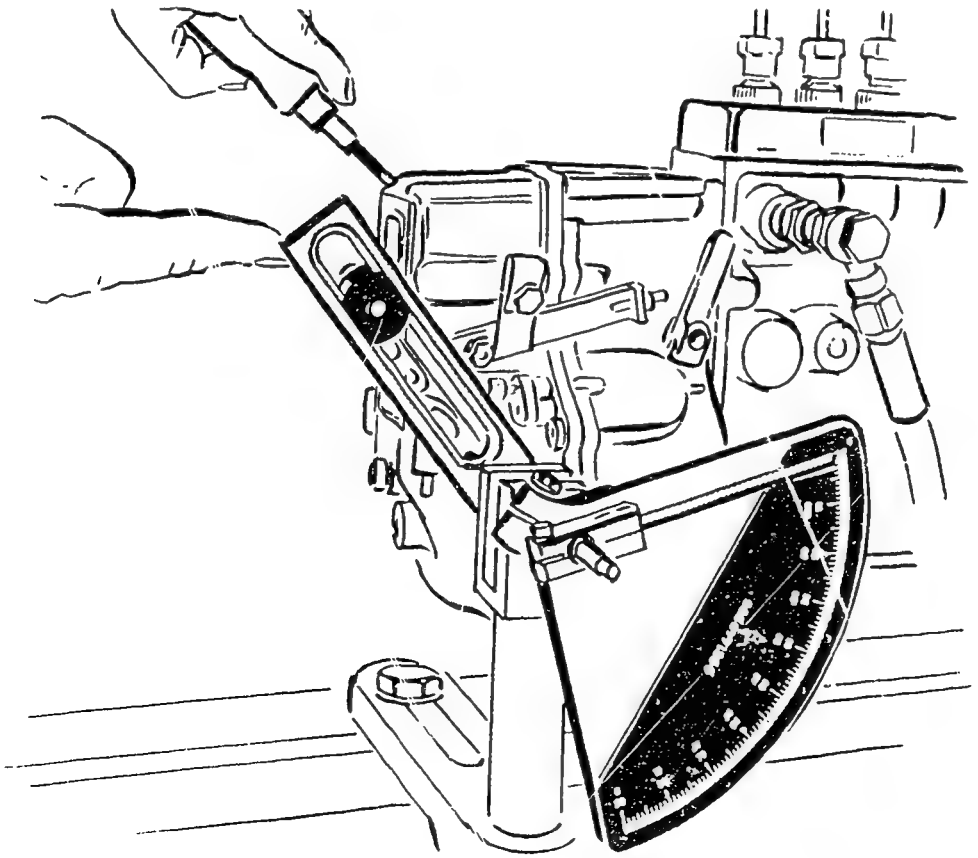
8. Goggles are to be worn during testing.

Continue: B28/1

MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION

Move control lever to shutoff position and slowly move it from this position towards full load. Whilst doing so, pay attention to control-rod-travel dial indicator. As soon as the control-rod-travel dial indicator shows control-rod movement upon moving the control lever, set scale of adjusting tool 0 681 440 006 to 0 Grad or set adjusting tool 1 688 130 183 to 90 Grad.

Continue: C01/1 Fig.: B28/2



KMK 02196

MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION

Drive injection-pump assembly at prescribed speed. Move control lever in direction of full load until prescribed control-rod travel has been attained. Read off position of control lever from adjusting tool 0 681 440 006 or 1 688 130 183 and compare to maximum value specified in test-specification sheet.

If the prescribed angular position is not obtained, perform correction e x c l u s i v e l y by way of a change in the position of the sliding sleeve (cam adjustment in governor cover).

Continue: C02/1

MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION

Note:

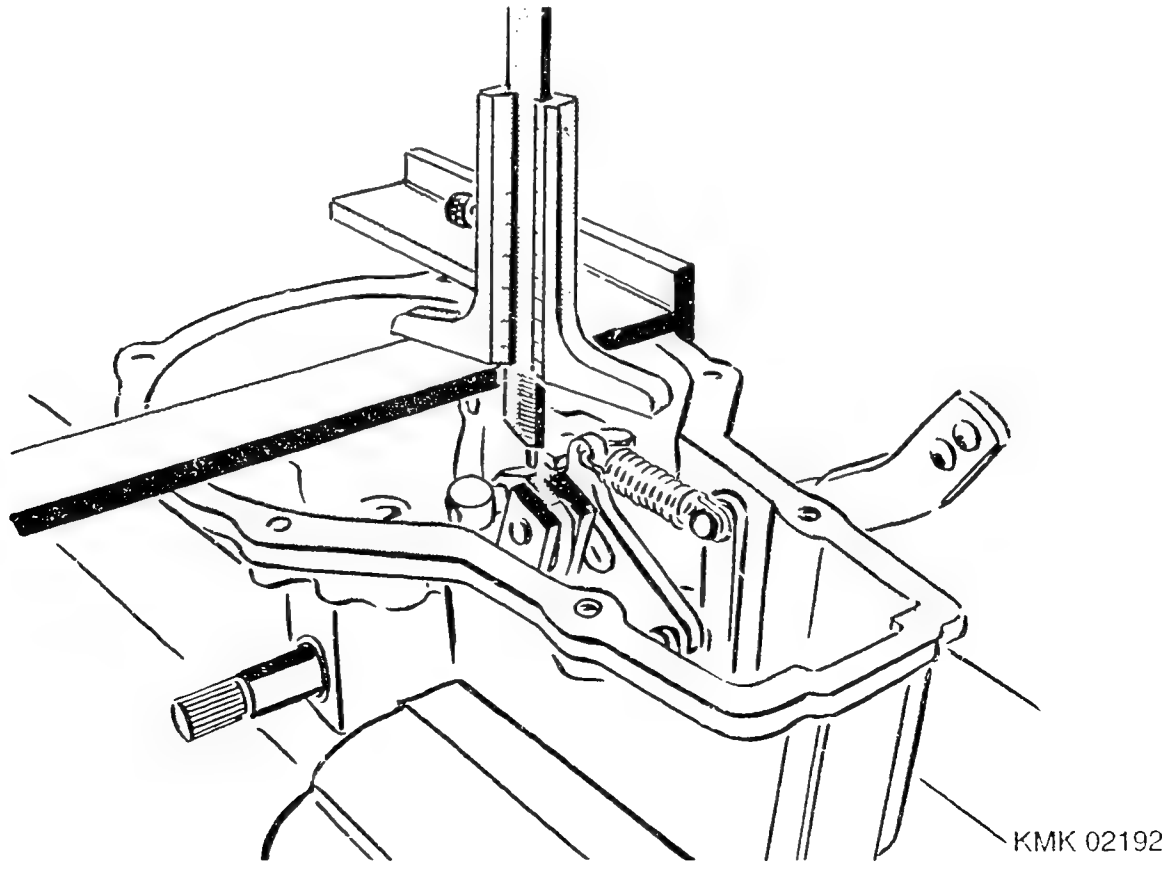
The governor-spring initial tension is no longer to be altered after this adjustment.

Remove governor cover. Turn control lever around to move control-lever stop to full load. The guide pin of the linkage lever makes contact at the end of the cam path. Place ruler in position. Specify dimension from cover sealing surface (without seal) to center of guide pin:

* 11 mm measuring element = 23.9...24.1 mm
* 13 mm measuring element and 11 mm measuring element (Mack) = 26.1...26.3 mm

Adjustment is effected by way of shims beneath the edge-cam stop.

Continue: C03/1 Fig.: C02/2



MEASURING AND ADJUSTING SLIDING-SLEEVE POSITION

Return control lever to its original position.
Move control-lever stop screw to position where control lever just makes contact with stop screw when linkage lever makes contact at end of cam path. Screw out stop screw 1/4 of a turn; for 11 mm measuring element (Mack) 1...1 1/4 turns.
Note:
If adjustment is not performed, the control lever cannot be moved to a greater angular position. This results in control-mechanism damage.

Continue: C03/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA),
as of Coordinate: D19/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP;
as of Coordinate: H01/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

Continue: D01/1

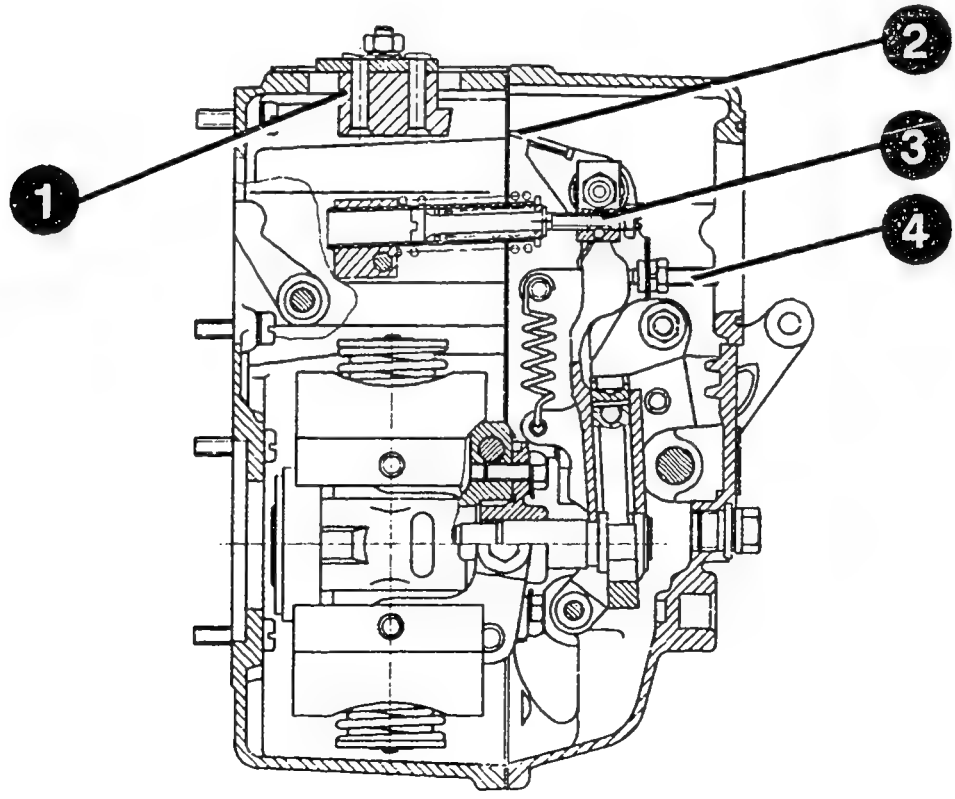
GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Lug cam with torque control
- Presetting of stop rocker, as of Coordinate D09/1

* Simple lug cam
- Stop rocker preadjustment

Position lug cam (1) in center and tighten fastening screws.

Continue: D02/1 Fig.: D01/2



KMK02197

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

1. Damaged fuel-injection pumps are not to be tested.

Continue: D02/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

2. Use is to be made of the tools, drives and clamping elements prescribed in these instructions as otherwise there would be a danger of accident.
Furthermore, damage to the unit under test and incorrect settings could result in the event of non-observance of the above.

Continue: D03/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, this may lead to further damage to the injection pump and to the test bench.

Continue: D03/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: D04/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: D05/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Simple lug cam

- Stop-rocker preadjustment

Loosen lock nut of adjusting screw (4).

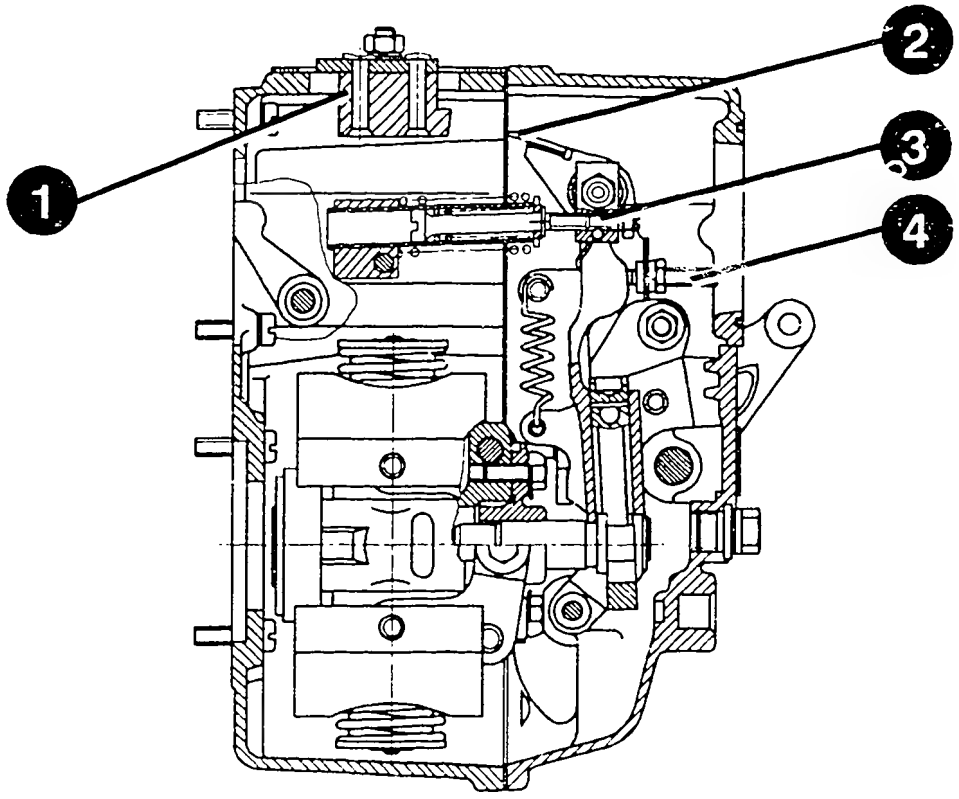
Use control lever to position stop rocker (2) against lug cam (1). The position of the stop rocker (2) on the lug cam (1) can be altered by turning the adjusting screw (4).

Return control lever to idle position.

Set speed n = 100.

Move control lever in direction of full load; stop rocker (2) must move beneath lug cam (1).

Continue: D06/1 Fig.: D05/2



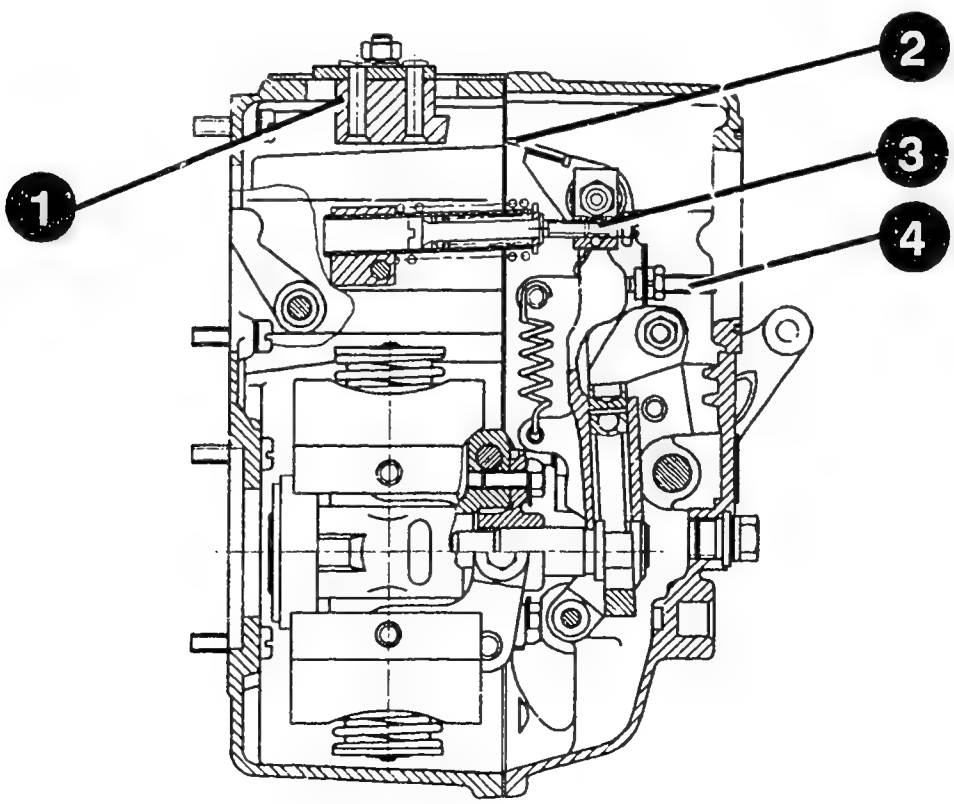
KMK02197

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

If the stop rocker (2) strikes the lug cam (1), the setting of the stop rocker (2) is to be corrected with the adjusting screw (4).

Repeat procedure until stop rocker (2) moves beneath lug cam (1).
Secure adjusting screw (4) with lock nut.

Continue: D07/1 Fig.: D06/2



KMK02197

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

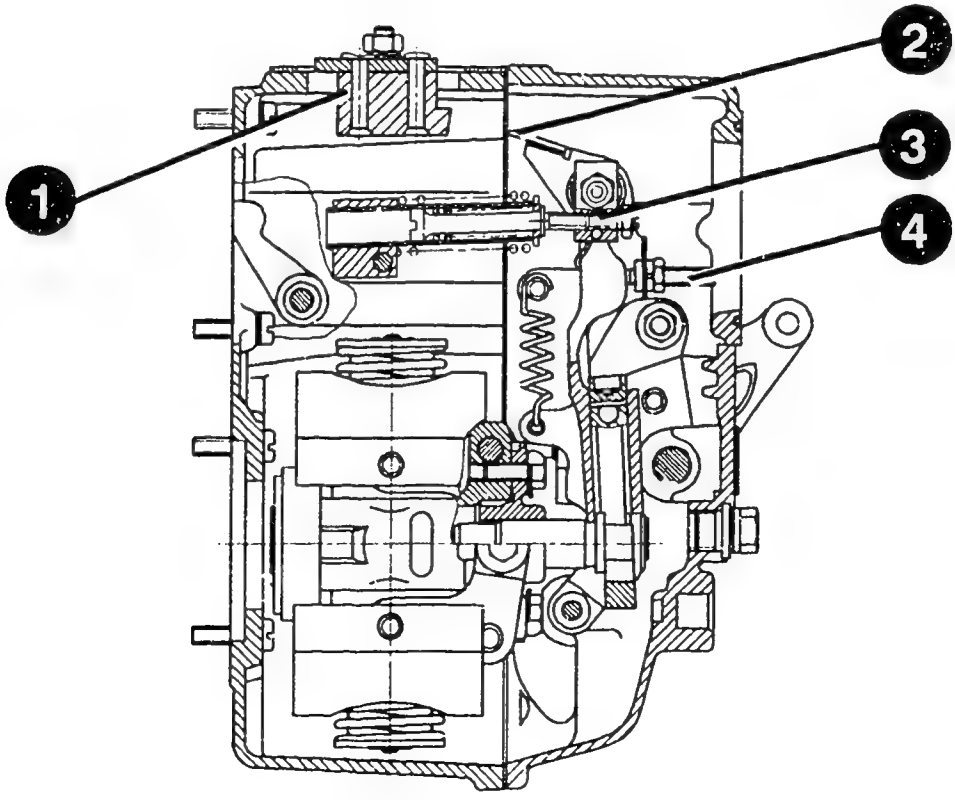
* Simple lug cam

- Adjustment of full-load control-rod travel

Set idle speed (speed for low idle). Use adjusting screw (4) to set stop rocker (2) such that rocker makes contact with lug cam (1) with control lever set to full-load position.

Loosen fastening screws. Shift lug cam (1) in parallel until prescribed control-rod travel (basic setting, 1st speed) is obtained.

Continue: D08/1 Fig.: D07/2



KMK02197

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Simple lug cam

- Adjusting start interlock

Set calculated speed (low idle 80 1/min).

Move control lever in direction of full load. Stop rocker must make contact with lug cam. Move control lever back. Set release speed (n = 100 1/min). Move control lever in full-load direction. Stop rocker must move beneath lug cam and starting control-rod travel must be obtained.

Note:

If start-interlock and release speed are given in test-specification sheet, then use is to be made of these values.

Continue: D08/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Simple lug cam

- Adjusting start interlock

Checking

In view of the fact that full-load control-rod travel and start-interlock setting are mutually influencing, the o t h e r function in each case m u s t be checked whenever o n e of the functions has been altered.

Note:

A precise setting is only achieved by alternatively correcting full-load control-rod travel and start interlock.

Continue: E17/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

1. Damaged fuel-injection pumps are not to be tested.

Continue: D09/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Safety precautions

2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: D10/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: D10/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: D11/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: D12/1

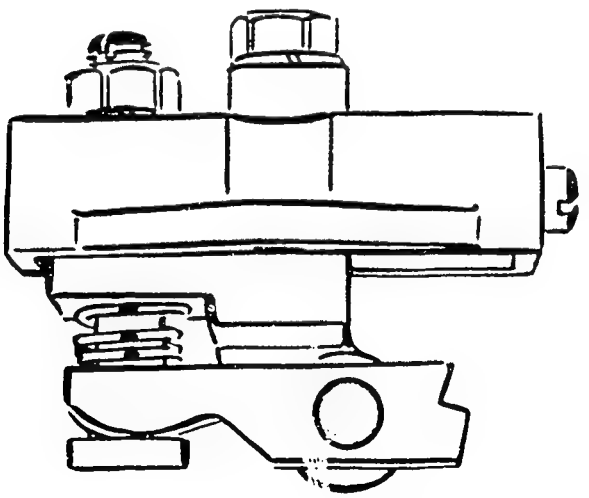
GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Lug cam with torque control

- Stop-rocker preadjustment

Loosen lock nut.
Position lug cam in parallel with base plate.

Continue: D13/1 Fig.: D12/2

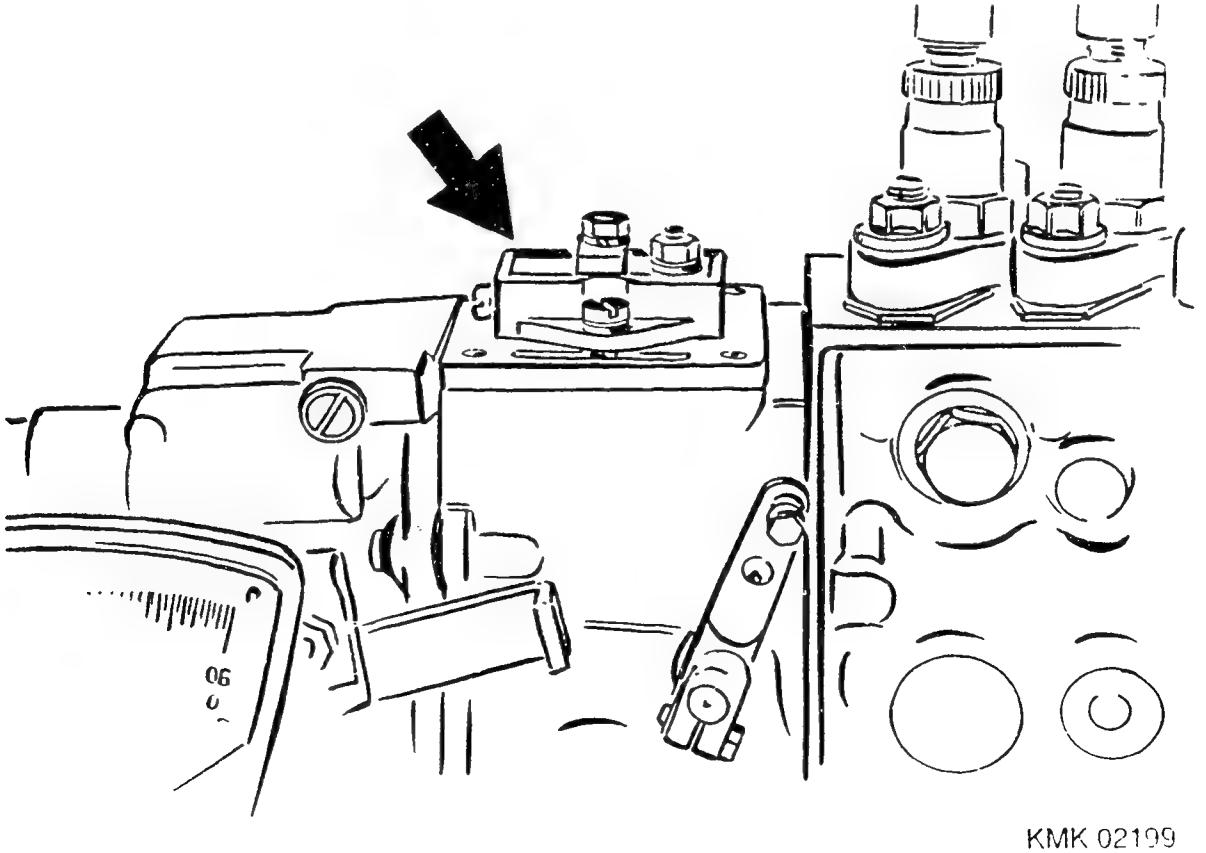


KMK 02198

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Move support to center position and install full-load stop on housing.

Continue: D14/1 Fig.: D13/2

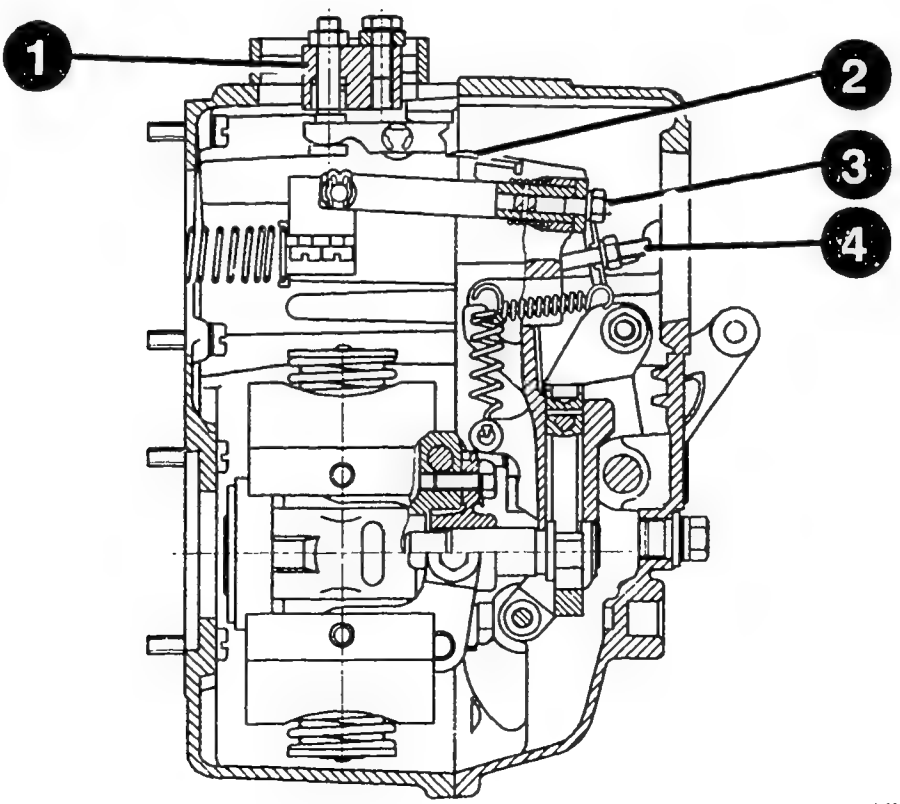


KMK 02199

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

Use adjusting screw (4) to move stop rocker (2) to center position. Operate injection pump at prescribed speed (speed, injection-pump basic setting). Move control lever to full-load position. Adjust stop rocker (2) by turning adjusting screw (4) until rocker makes contact at reversal point of lug cam (1) and max. control-rod travel is obtained.

Continue: D15/1 Fig.: D14/2

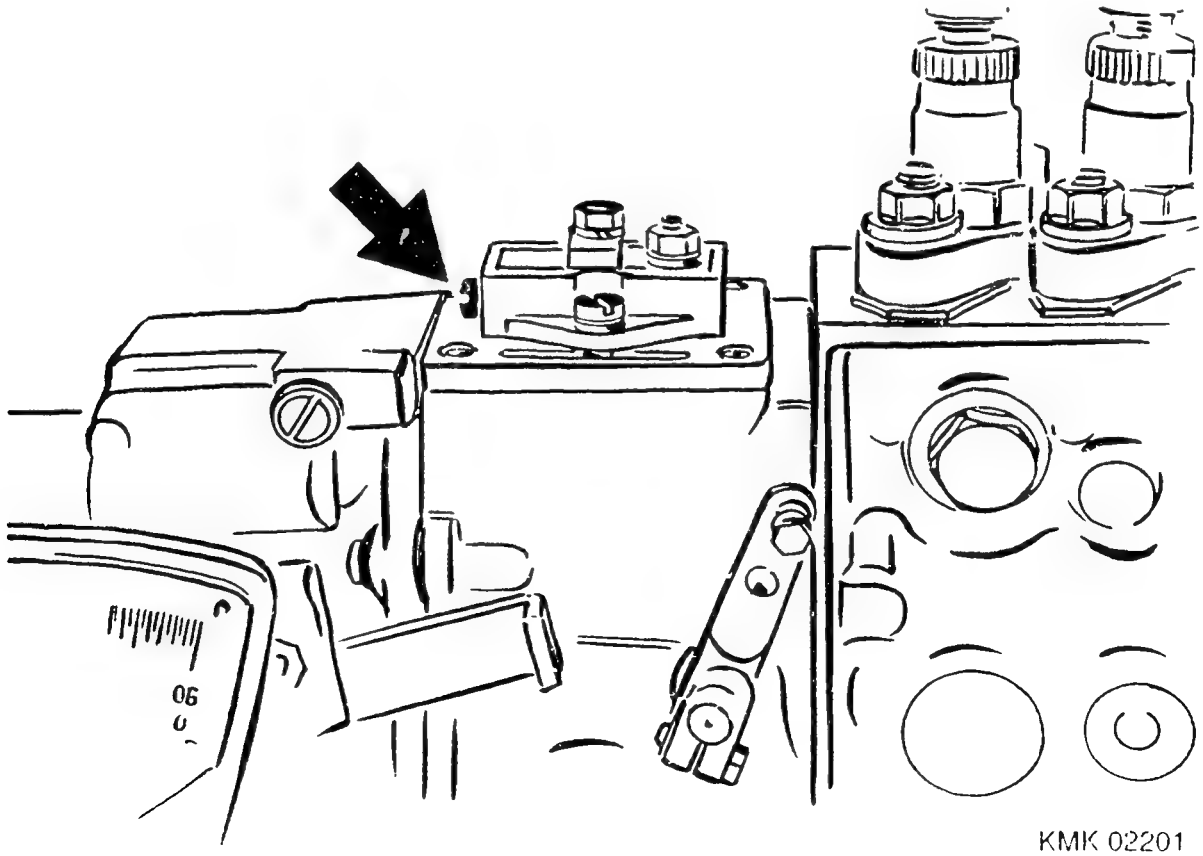


KMK02200

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop-rocker preadjustment

If the stated control-rod travel is not obtained at the reversal point, loosen clamping screw and turn spindle (picture, arrow) to move slide until stated control-rod travel is attained. Then check reversal-point setting.
Note:
Alternate correction may be necessary due to the mutual influencing of full-load control-rod travel and reversal-point setting.

Continue: D16/1 Fig.: D15/2



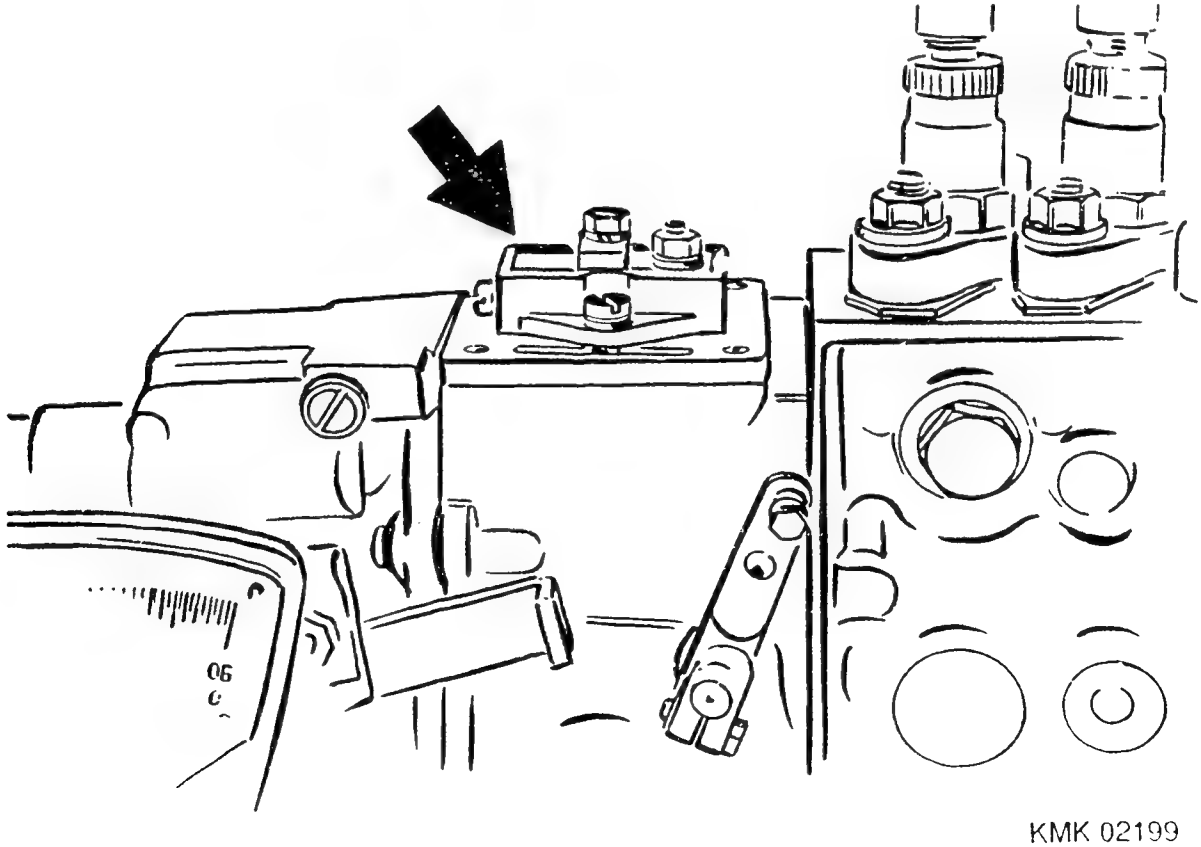
GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Lug cam with torque control

– Checking torque-control profile

Set speeds prescribed in test-specification sheet and read off control-rod travel.
Turn adjusting screw of lug cam (picture, arrow) until stated control-rod travel is obtained at the corresponding speeds. Screwing in the adjusting screw increases the control-rod travel at high speed and simultaneously reduces the travel at low speed.

Continue: D17/1 Fig.: D16/2



KMK 02199

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Checking torque-control profile

Note:
Rocker setting, setting of full-load control-rod travel and torque-control profile are mutually influencing.
The corrections become smaller and smaller on approaching the set values.

Whenever adjustment has been made, secure adjusting screws with lock nuts.

Continue: D17/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Checking start release and start interlock

Operate injection pump at start release speed (n = low idle speed -50 to 100 1/min).
Move control lever from full-load to idle position. During this process, set rocker such that it can move beneath the lug cam and starting control-rod travel is attained.
Altering the rocker position alters the
- full-load control-rod travel setting and the
- reversal-point setting.

Continue: D18/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control

Adjustment of:
- Full-load control-rod travel
- Reversal point
- Start release
must be repeated in the stated order until the test specifications are attained for all functions.

After setting the above functions, it is also possible to perform precision adjustment of the full-load control-rod travel by way of the adjusting screw. This does not affect the start interlock function.

Continue: E17/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Lug cam with torque control
- Stop-rocker preadjustment, as of Coordinate: E01/1

* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

Continue: D19/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: D20/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: D20/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: D21/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Simple lug cam
- Stop-rocker preadjustment

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

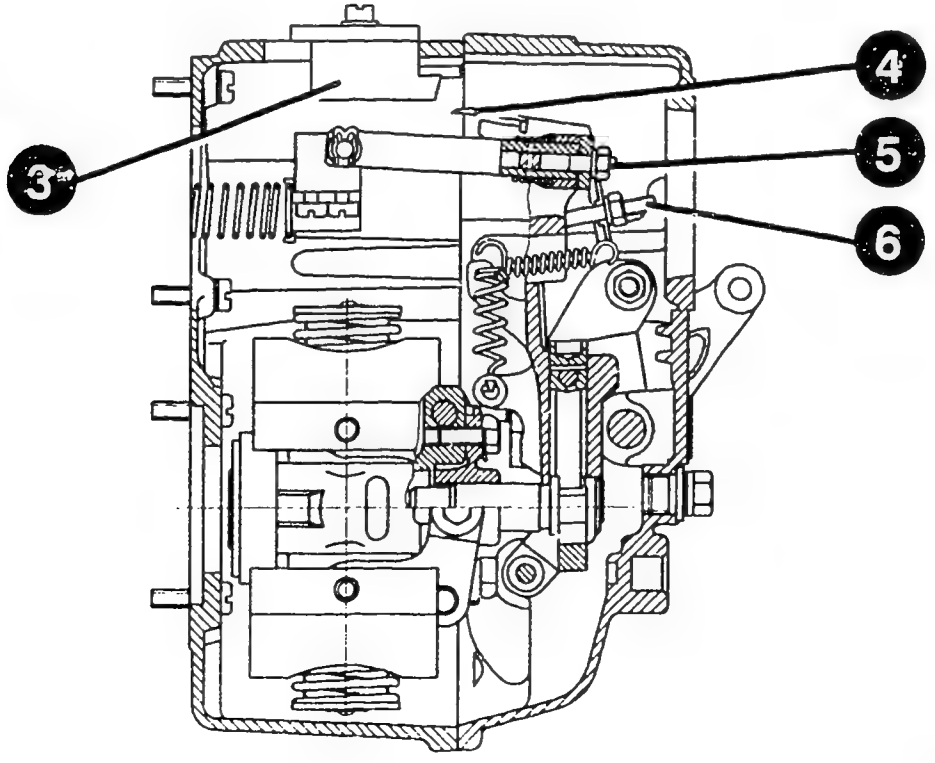
8. Goggles are to be worn during testing.

Continue: D22/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Position lug cam (3) in center and tighten fastening screws.

Continue: D23/1 Fig.: D22/2

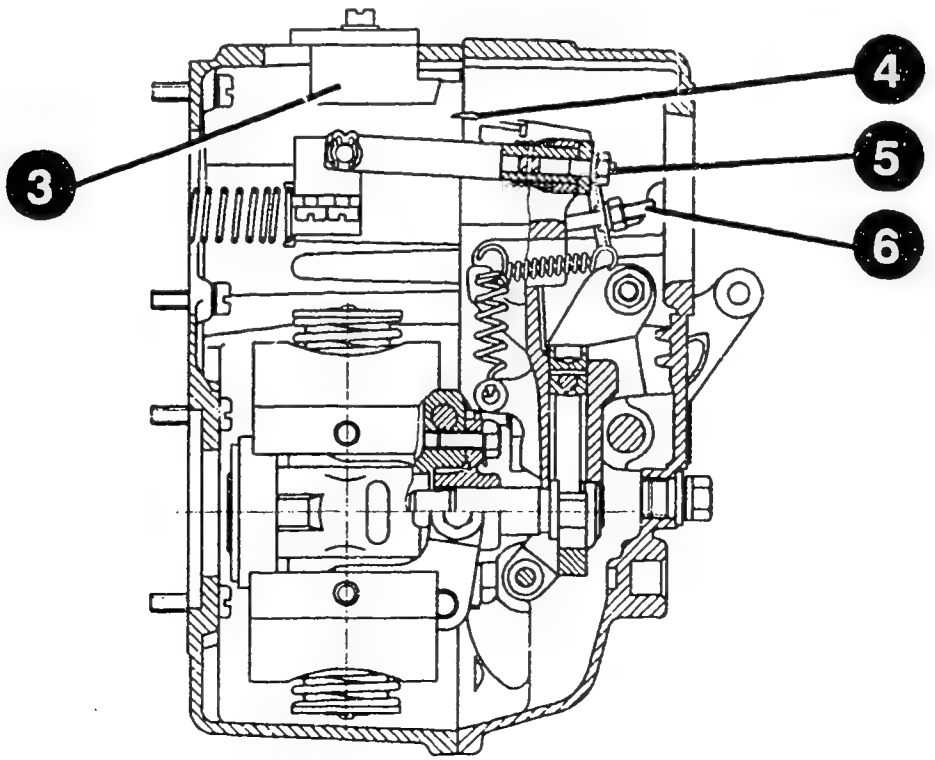


KMK02202

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Stop-rocker preadjustment

Loosen lock nut of adjusting screw (6). Use adjusting screw (6) to move stop rocker (4) to center position. Tighten lock nut.

Continue: D24/1 Fig.: D23/2



KMK02202

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

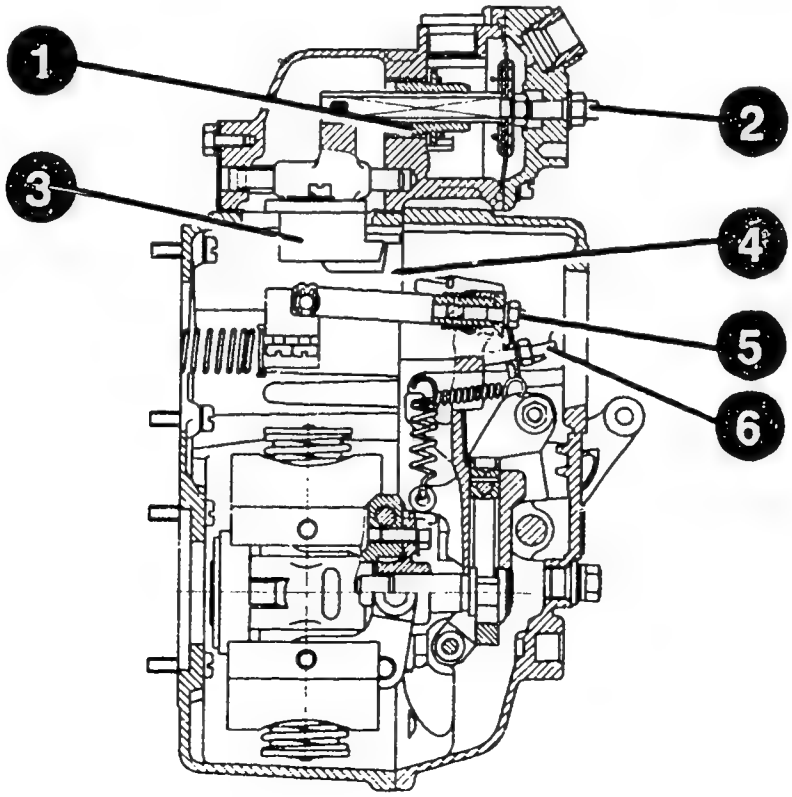
* Simple lug cam

– Adjusting control-rod travel, intake

Attach LDA.

Operate injection pump at prescribed speed; LDA pressure zero bar.
Use adjusting screw (2) to set control-rod travel.

Continue: D25/1 Fig.: D24/2



KMK02203

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

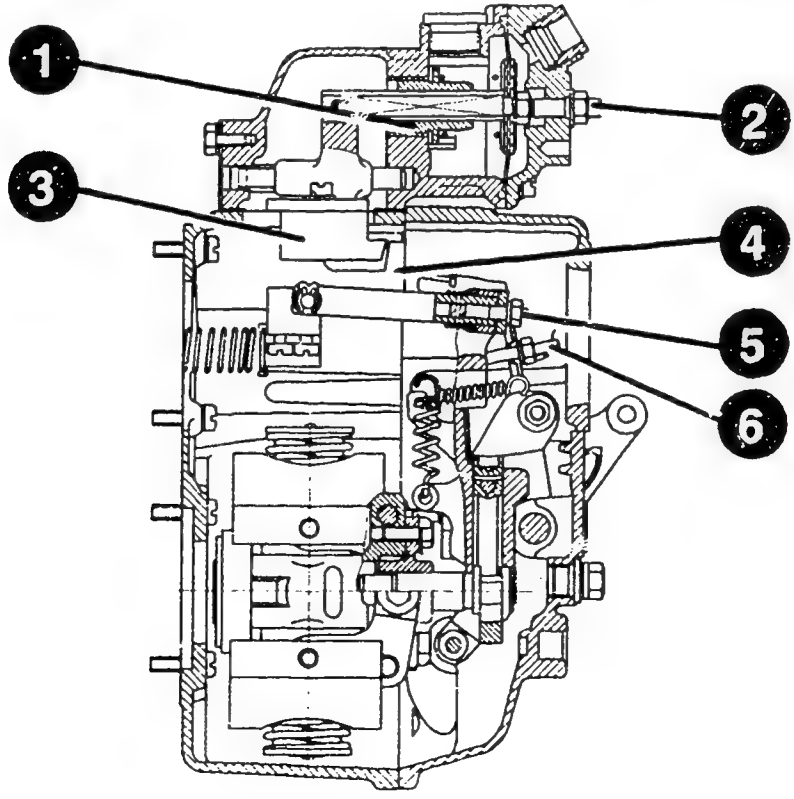
* Simple lug cam

– Adjusting full-load control-rod travel

Adjust idle speed (speed for low idle). Use adjusting screw (6) to adjust stop rocker (4) such that rocker makes contact with lug cam (3) when control lever is set to full load.

Loosen fastening screws. Shift lug cam (3) in parallel until prescribed control-rod travel (basic setting, 1st speed) is obtained.

Continue: D26/1 Fig.: D25/2



KMK02203

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

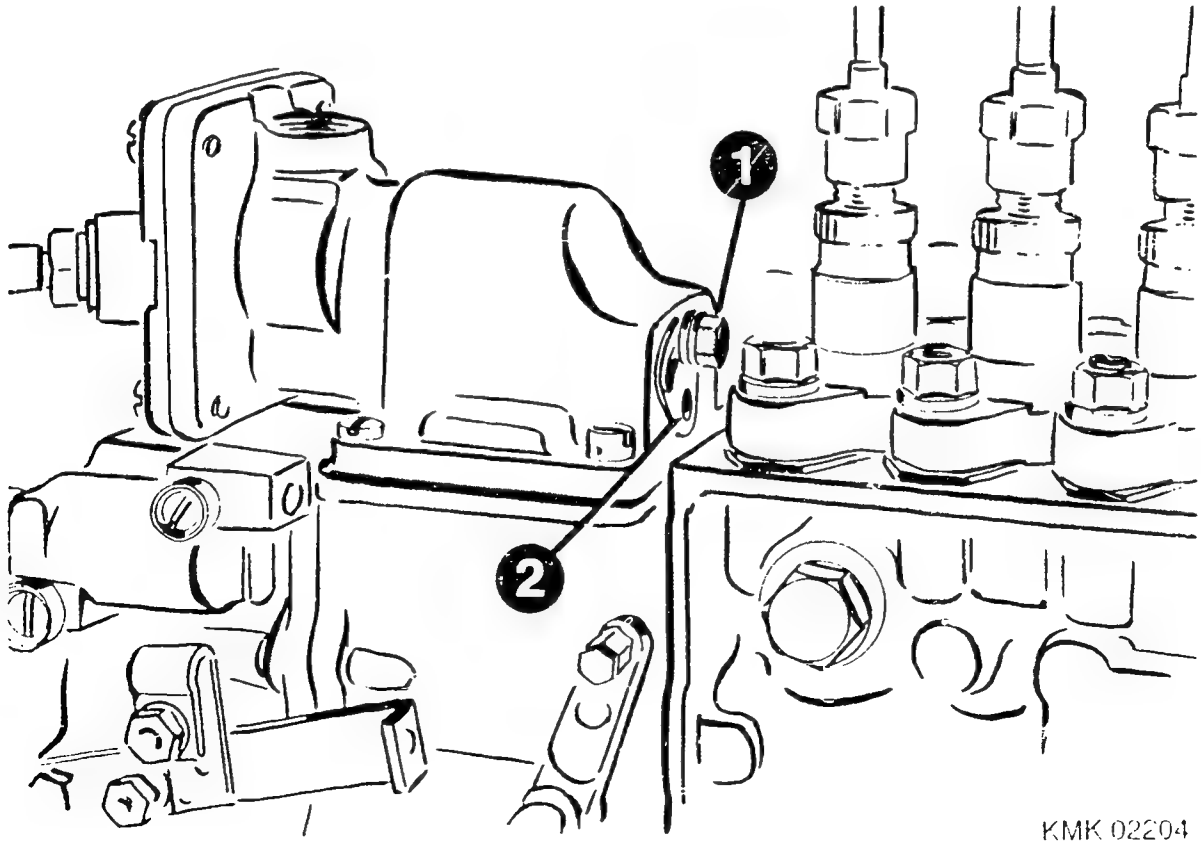
* Simple lug cam

- Checking start release and start interlock

Operate injection pump at start release speed (n = low idle speed -50 to 100 1/min). Move control lever from full-load to idle position. The rocker must move beneath the lug cam and starting control-rod travel must be obtained.

Limited adjustment is possible by way of the eccentric at the guide pin. After loosening the fastening screw (1), the height of the suction cam stop can be corrected by turning the guide pin (2).

Continue: D27/1 Fig.: D26/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Simple lug cam

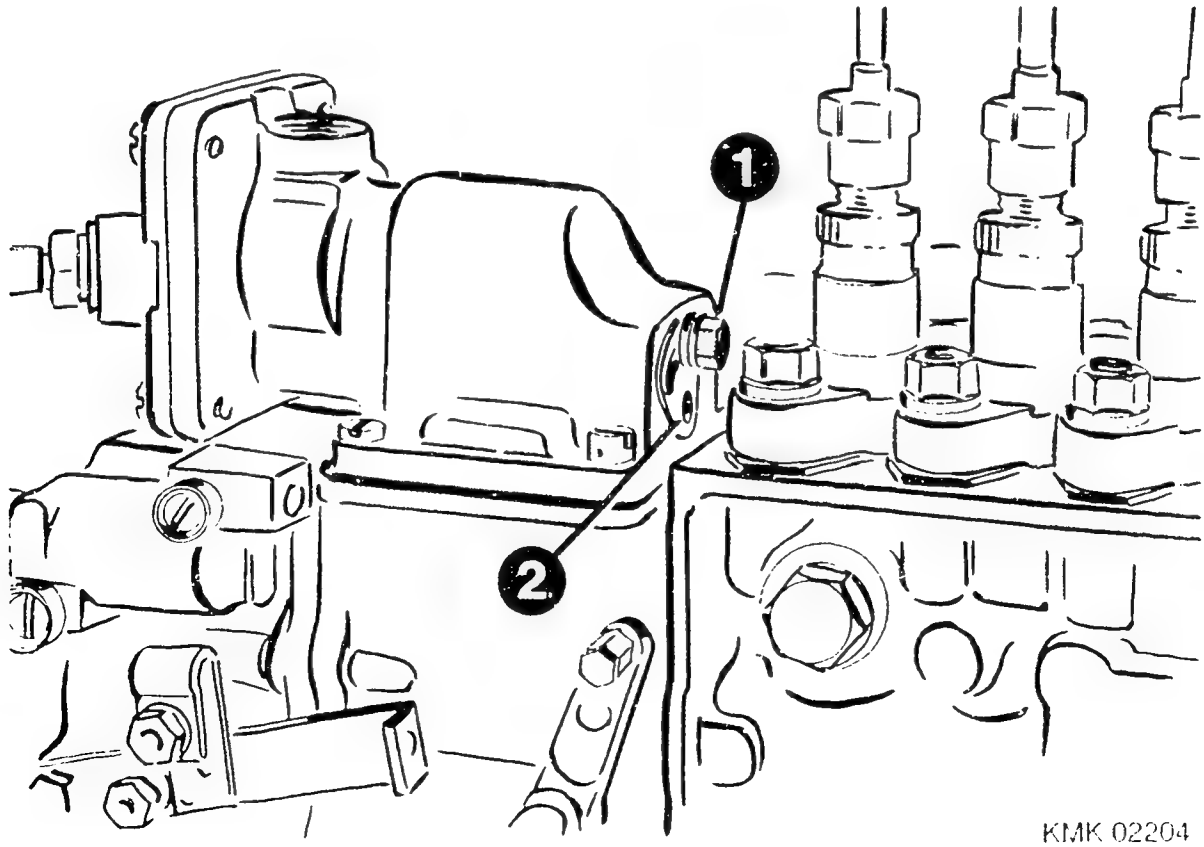
- Adjusting start interlock

Set prescribed speed (low idle -80 1/min). Move control lever in direction of full load. Stop rocker must make contact with suction cam. Move control lever back. Set release speed. Move control lever in direction of full load. Stop rocker must move beneath suction cam and starting control-rod travel must be obtained. Effect correction at guide pin (2).

Note:

If start interlock and release speed are indicated in test-specification sheet, then use is to be made of these values.

Continue: D28/1 Fig.: D27/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Simple lug cam
- Adjusting start interlock

Checking
In view of the fact that the full-load control-rod travel and start-interlock setting are mutually influencing, the other function in each case must be checked whenever one of the functions is adjusted.

Note:
Precise adjustment can only be obtained by alternate correction of full-load control-rod travel and start interlock.

Continue: E10/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop rocker preadjustment

Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

1. Damaged fuel-injection pumps are not to be tested.

Continue: E01/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop rocker preadjustment

Safety precautions

2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: E02/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop rocker preadjustment

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: E02/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
- Stop rocker preadjustment

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: E03/1

GOVERNORS WITH MANIFOLD–PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
– Stop rocker preadjustment

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

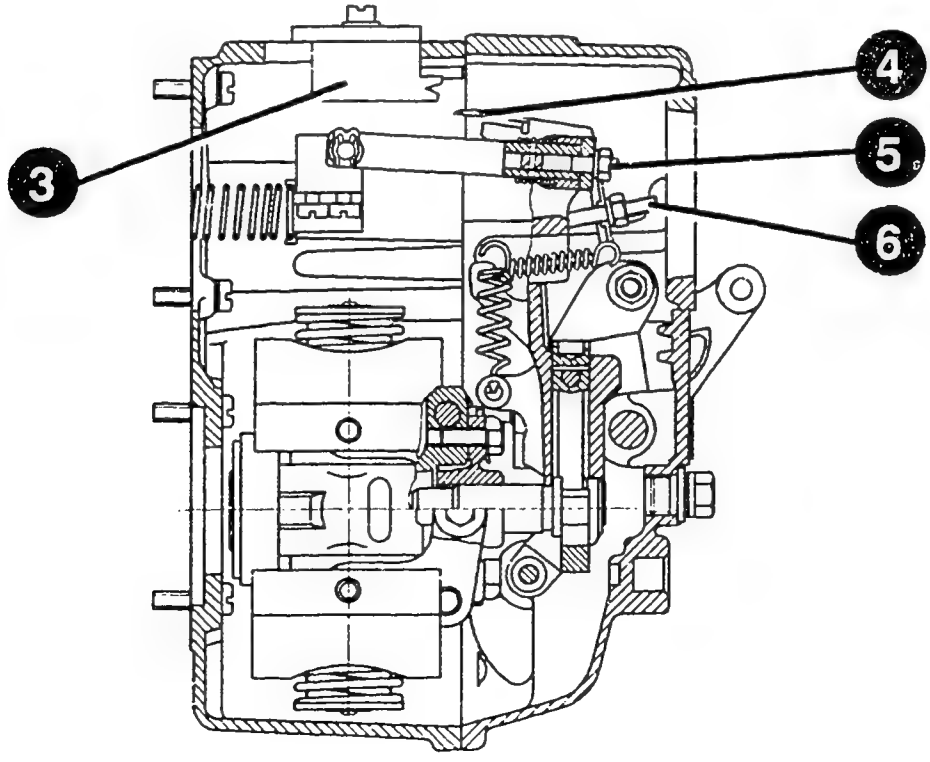
8. Goggles are to be worn during testing.

Continue: E04/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
– Stop rocker preadjustment

Position lug cam (3) in center and tighten fastening screws.

Continue: E05/1 Fig.: E04/2

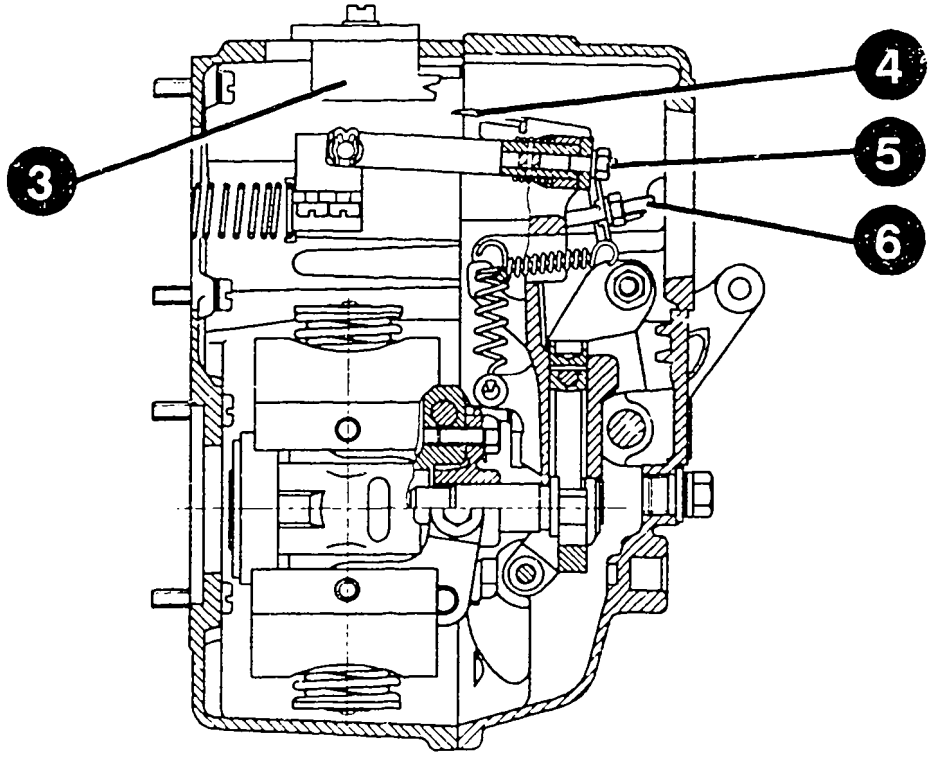


KMK02205

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control
– Stop rocker preadjustment

Loosen lock nut at adjusting screw (6). Use adjusting screw (6) to move stop rocker to center position. Run injection pump at prescribed speed (speed, injection-pump basic setting). Move control lever to full-load position. By turning adjusting screw, adjust stop rocker until rocker makes contact at reversal point of lug cam (3) and max. control-rod travel is obtained.

Continue: E06/1 Fig.: E05/2



KMK02205

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Lug cam with torque control

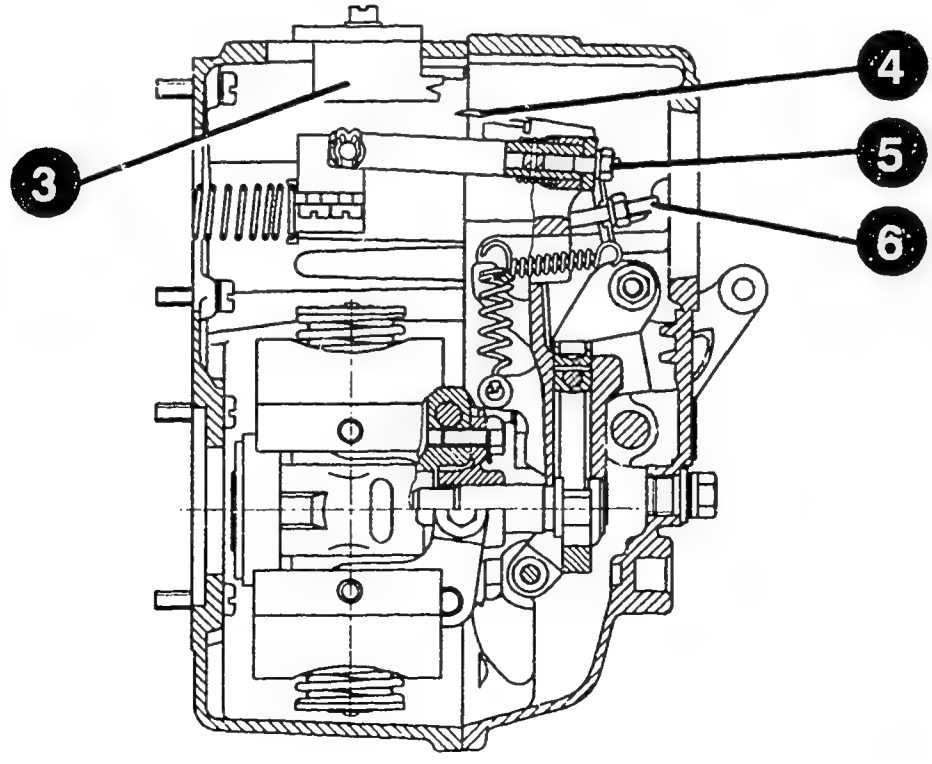
– Stop rocker preadjustment

If the stated control-rod travel is not obtained at the reversal point, loosen fastening screws and axially shift lug cam (3) until stated control-rod travel is obtained. Then check reversal-point setting.

Set speed n = 100. Move control lever in direction of full load. In doing so, the stop rocker (4) must move beneath the lug cam (3).

Note: The mutual influencing of full-load control-rod travel and reversal-point setting may necessitate alternate correction.

Continue: E07/1 Fig.: E06/2



KMK02205

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

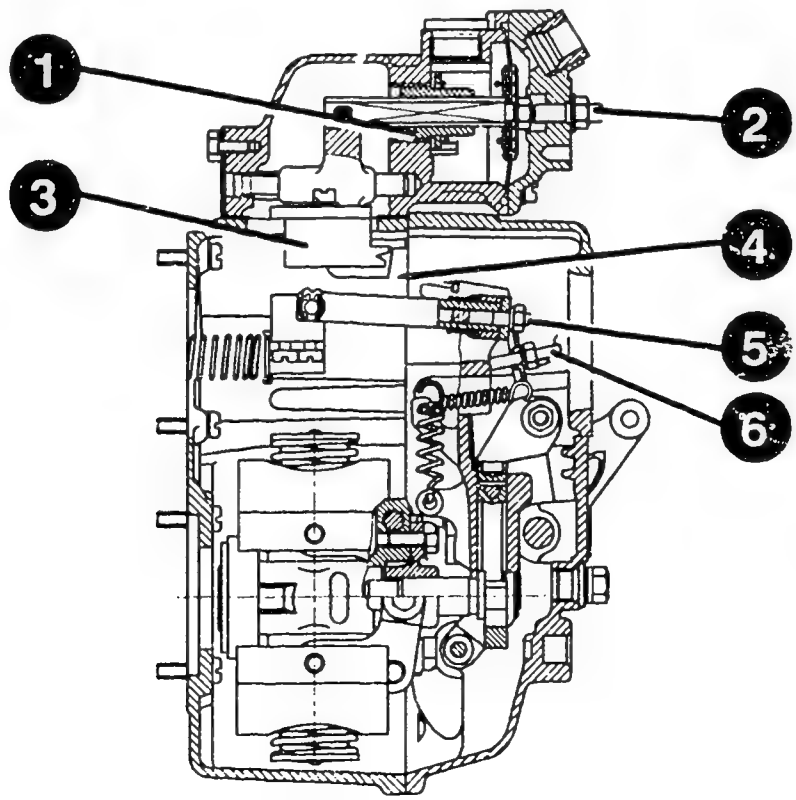
* Lug cam with torque control

– Adjusting control-rod travel, normal delivery

Attach LDA.

Run fuel-injection pump at prescribed speed; LDA pressure zero bar.
Adjust control-rod travel at adjusting screw (2).

Continue: E08/1 Fig.: E07/2



KMK02206

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Lug cam with torque control

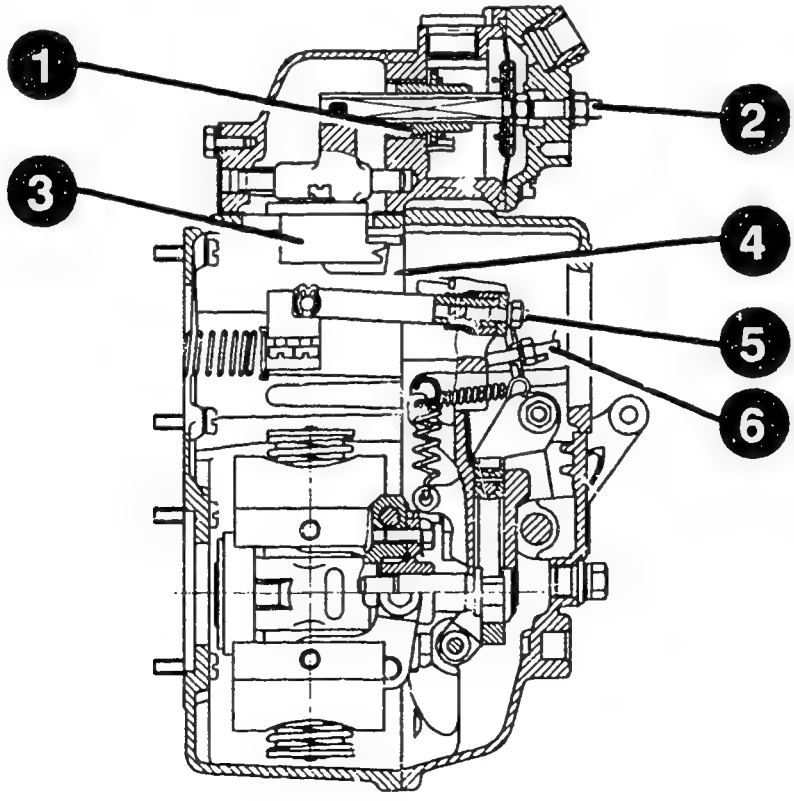
– Checking start release and start interlock

Run injection pump at start release speed (n = low idle speed –50 to 100 1/min). Move control lever from full-load to idle position. During this process, adjust rocker (4) such that it can move beneath lug cam (3) and starting control-rod travel is obtained. Changing the rocker position changes the

– full-load control-rod-travel setting and the

– reversal-point setting.

Continue: E09/1 Fig.: E08/2



KMK02206

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Lug cam with torque control

Adjustment of:
- Full-load control-rod travel
- Reversal point
- Start release
must be repeated in the stated sequence until the test specifications for all functions are obtained.

After adjusting the above functions, the full-load control-rod travel can additionally be subjected to fine adjustment by way of the adjusting screw. This does not affect the start interlock function.

Continue: E10/1

CHECKING MANIFOLD-PRESSURE
COMPENSATOR (LDA)

* Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: E10/2

CHECKING MANIFOLD-PRESSURE
COMPENSATOR (LDA)

* Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: E11/1

CHECKING MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: E11/2

CHECKING MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench. If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: E12/1

CHECKING MANIFOLD-PRESSURE
COMPENSATOR (LDA)

* Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: E12/2

CHECKING MANIFOLD-PRESSURE
COMPENSATOR (LDA)

* Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
D a n g e r o f i n j u r y !
Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

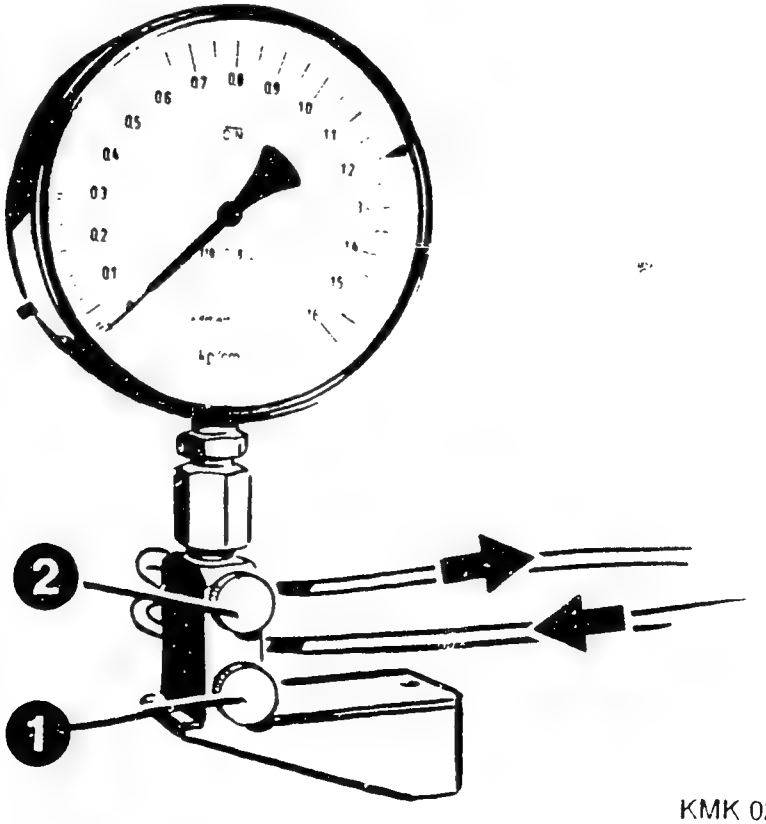
Continue: E13/1

CHECKING MANIFOLD-PRESSURE COMPENSATOR (LDA)

Make connection between pressure reducer and bottom connection of adjuster. Connect LDA to upper connection of adjuster:

Adjusting screw 1 (white, bottom) for adjusting pressure.
Screw plug 2 (black, top) for leak test.

Continue: E14/1 Fig.: E13/2



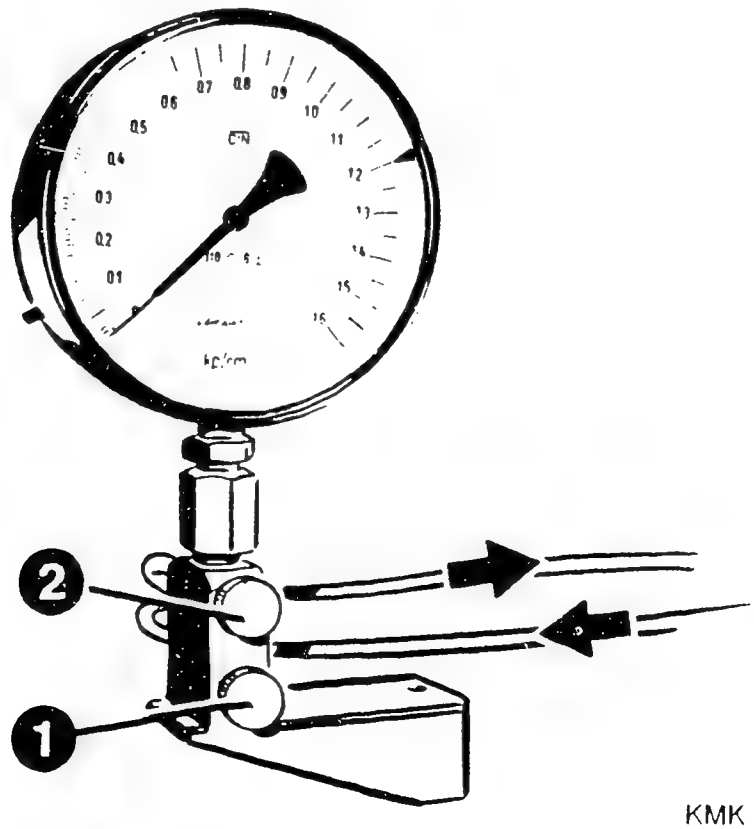
KMK 02207

CHECKING MANIFOLD-PRESSURE COMPENSATOR (LDA)

* LDA leak test

Install LDA on governor housing with fastening screws.
Set 1.0 bar charge-air pressure at adjusting screw 1 of adjuster. Seal screw plug 2 and shut off air supply.
The pressure gauge must not indicate a drop in pressure.

Continue: E15/1 Fig.: E14/2



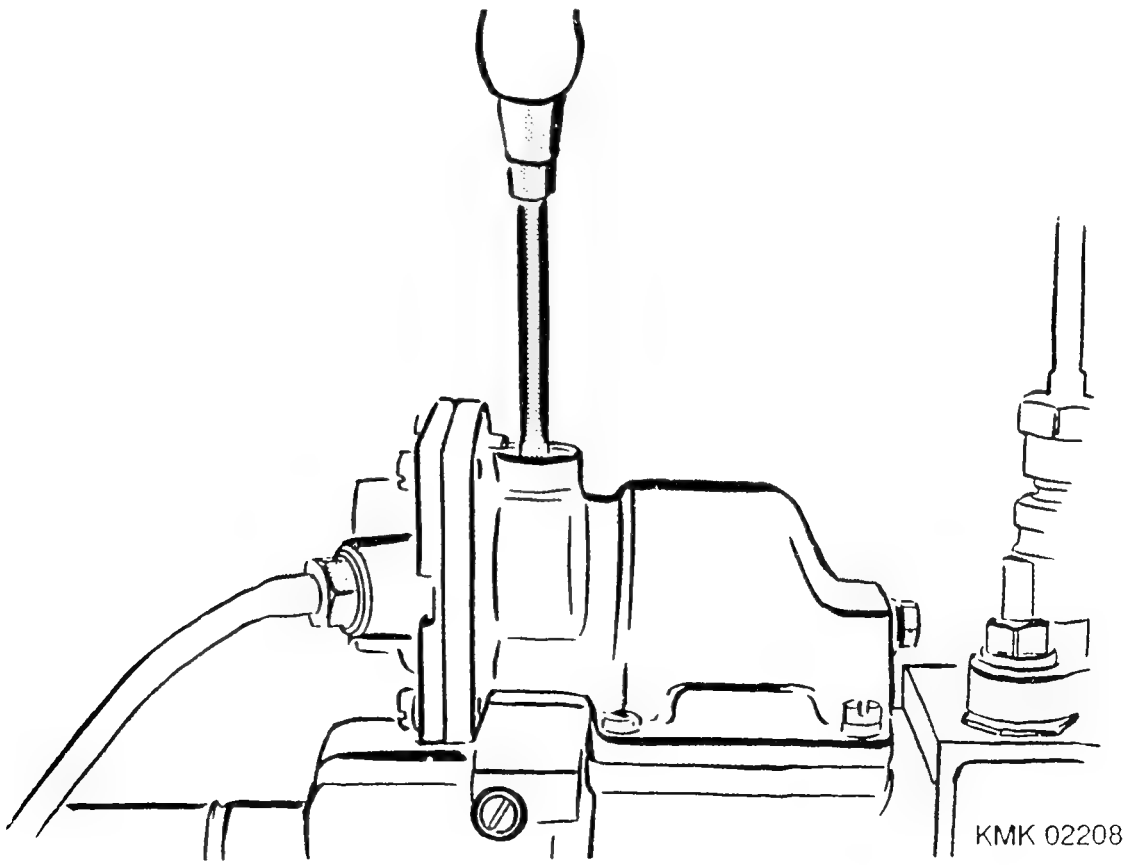
KMK 02207

CHECKING MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting LDA control-rod travel

Run injection pump at prescribed speed (LDA setting). Apply prescribed pressure to LDA. Adjust control-rod travel by turning threaded bush.

Continue: E16/1 Fig.: E15/2



CHECKING MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Checking LDA characteristic-curve profile.

Run injection pump at prescribed speed. The stated control-rod travels must be attained in the sequence of LDA pressures listed.

Continue: F01/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery
as of Coordinate F01/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

Continue: E17/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: E18/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: E18/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: E19/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: E19/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: E20/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: E20/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Take speeds from appropriate test-specification sheet.
The prescribed full-load deliveries a r e not to be corrected at the full-load stop of the governor (full-load delivery, torque-control profile and start interlock have mutual influence).

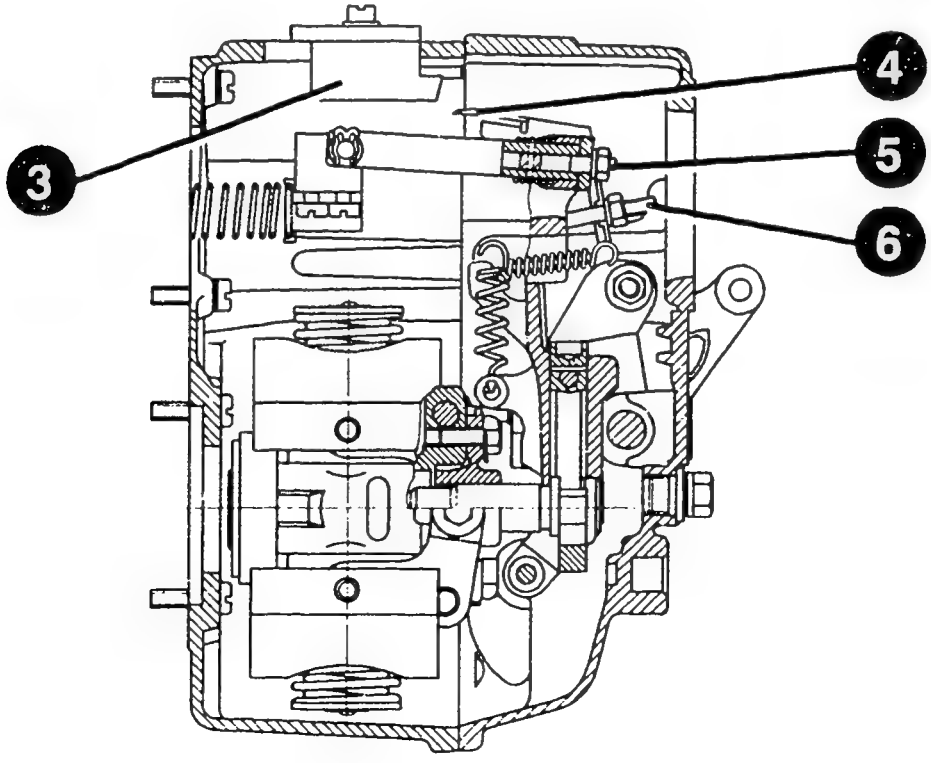
Continue: E21/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Slight deviations can be offset by way of the fine correction screw (5) (approx. +/- 0.5 mm control-rod travel). Major deviations are to be adjusted at the injection-pump uniform delivery feature.

Note:
If the uniform delivery feature is corrected, the control lever must be moved back until there is n o delivery.

Continue: E22/1 Fig.: E21/2



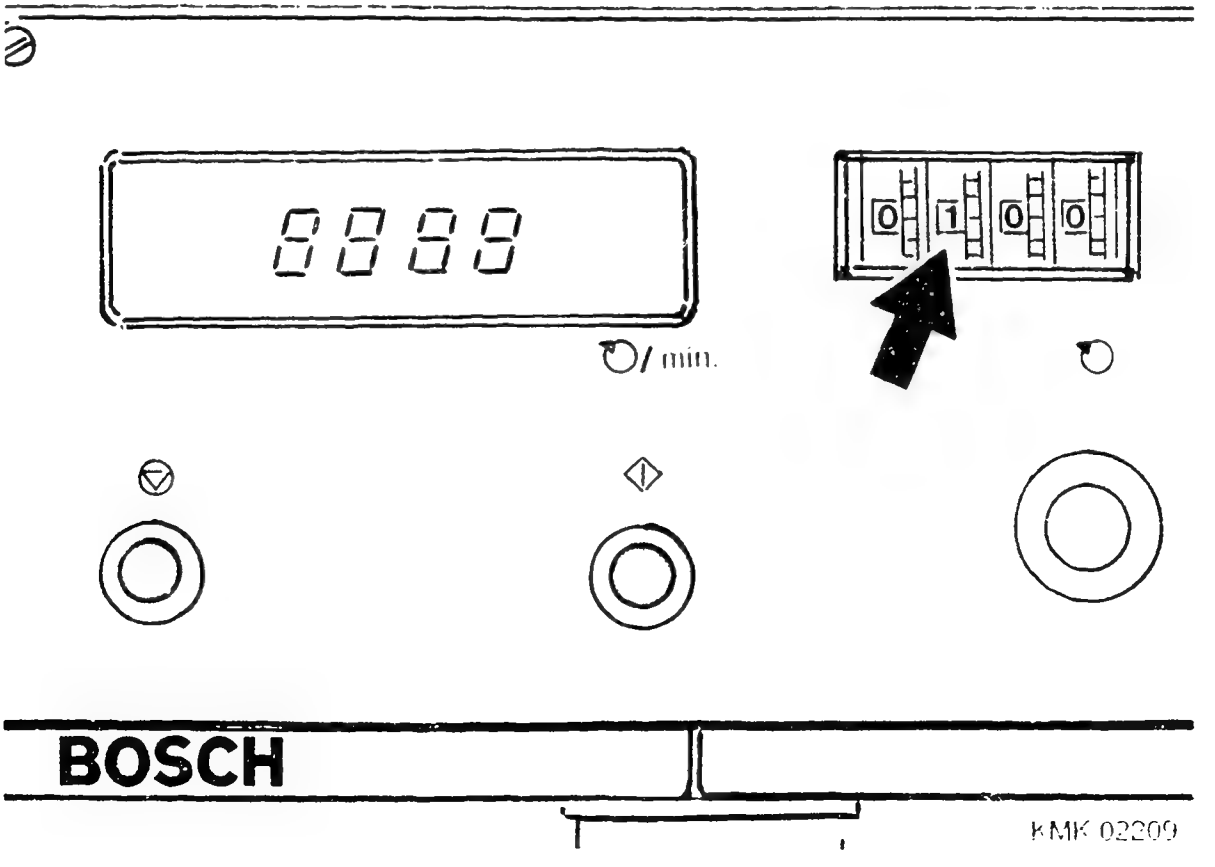
KMK02202

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting full-load delivery

Run injection-pump assembly at prescribed speed. Set stroke counter to 100-stroke measurement and switch it on. The calibrating oil collected in the test-bench graduates is not used with the first measurement for determining the injected quantity, but rather to moisten the graduates. These are emptied again. The runout time is 29...31 seconds. Moisten graduates again if the interval after runout is longer than 10 minutes.

Continue: E23/1 Fig.: E22/2

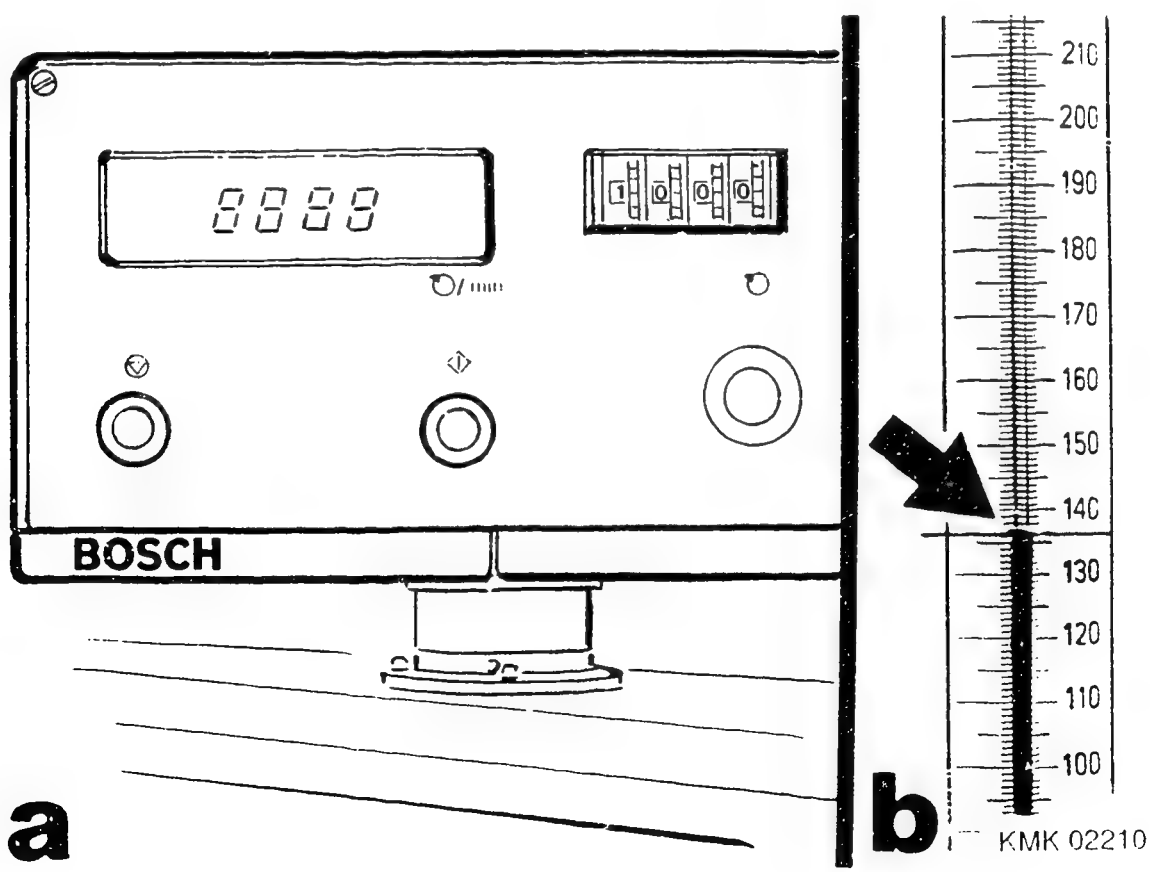


GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting full-load delivery

Set stroke counter to 1000-stroke measurement and trigger it. Once the stroke counter has completed the measurement, read off and note down the amount of calibrating oil in each graduate. For precise reading of the amount of calibrating oil in the graduate, there is a blue strip opposite the graduate numbers. When graduates are wet, the refraction produces two peaks – one on top of the other – at the surface of the liquid. The delivery is always to be read off at the scale division to which the two peaks are pointing.

Continue: E24/1 Fig.: E23/2



GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

The delivery given in the test specifications represents the average value for all individual deliveries determined.
At the same time, a check is to be made as to whether the scatter permitted in the test specifications is exceeded. The scatter designates the difference in quantity between the maximum and minimum delivery rate.

Continue: E24/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Example:
Prescribed delivery:
121...123 cm3/1000 strokes
Permitted scatter: 3 cm3/1000 strokes
1st measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 125 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes
Average: 123.5 cm3/1000 strokes

Continue: E25/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Scatter determined:
125 - 122 = 3 cm3/1000 strokes

This setting is not permitted.
The average value of all barrels is not between 121 and 123 cm3/1000 strokes.

Continue: E25/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

2nd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 120 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.25 cm3/1000 strokes

Continue: E26/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Scatter determined:
124 - 120 = 4 cm3/1000 strokes

This setting is likewise not permitted.
The scatter is greater than 3 cm3/1000 strokes.

Continue: E26/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

3rd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 122 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.75 cm3/1000 strokes

Continue: E27/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting full-load delivery

Scatter determined:
124 - 122 = 2 cm3/1000 strokes

This setting is likewise permissible.
Injected-quantity values in parentheses apply only to injection-pump checking, n o t to adjustment.

Continue: F19/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

The following safety precautions are to be observed in addition to the safety precautions given in the operating instructions for Bosch injection-pump test benches:

Continue: F01/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: F02/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: F02/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: F03/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: F03/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: F04/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: F04/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Take speeds and charge-air pressures from appropriate test-specification sheet.
The prescribed full-load deliveries a r e not to be corrected at the full-load stop of the governor (mutual influencing of full-load delivery, torque-control profile and start interlock).

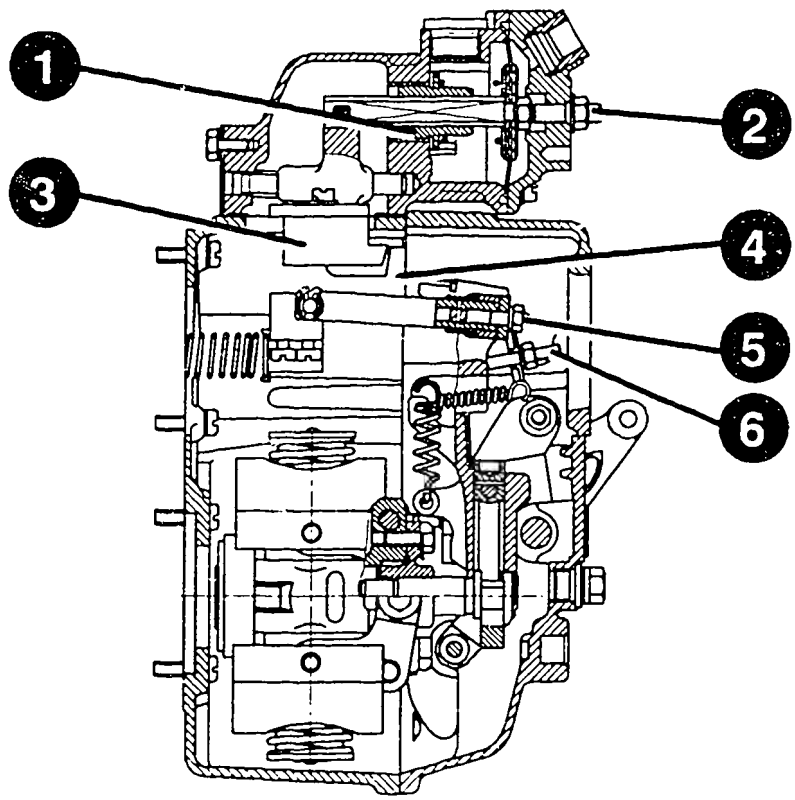
Continue: F05/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Slight deviations can be offset by way of the fine correction screw (5) (approx. +/- 0.5 mm control-rod travel). Major deviations are to be adjusted at the injection-pump uniform delivery feature.

Note:
If the uniform delivery feature is corrected, the control lever must be moved back until there is n o delivery.

Continue: F06/1 Fig.: F05/2



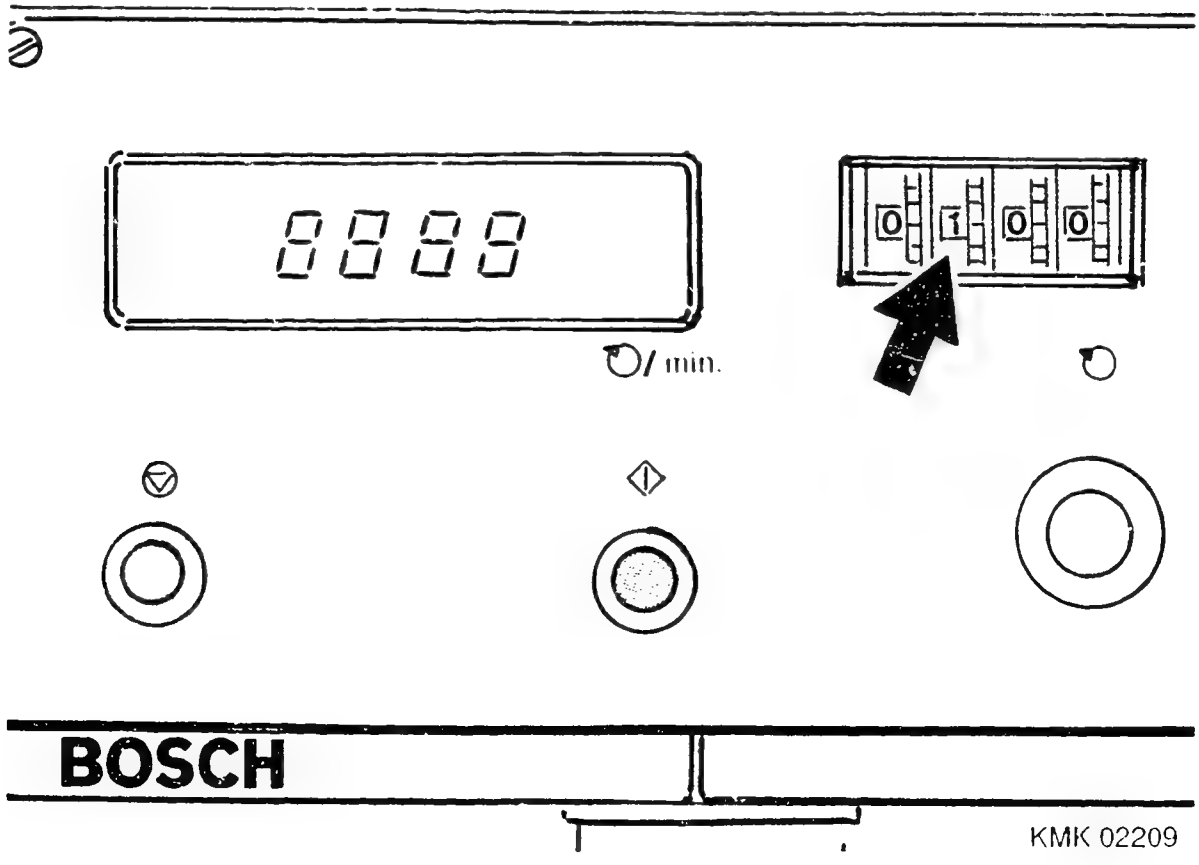
KMK02203

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting full-load delivery

Operate injection-pump assembly at prescribed speed. Set stroke counter to 100-stroke measurement and switch on. The calibrating oil collected in the test-bench graduates is not used with the first measurement for determination of the injected quantity, but rather for wetting the graduates. These are emptied again. The runout time is 29...31 seconds. The graduates are to be wetted again if the interval after runout is longer than 10 minutes.

Continue: F07/1 Fig.: F06/2

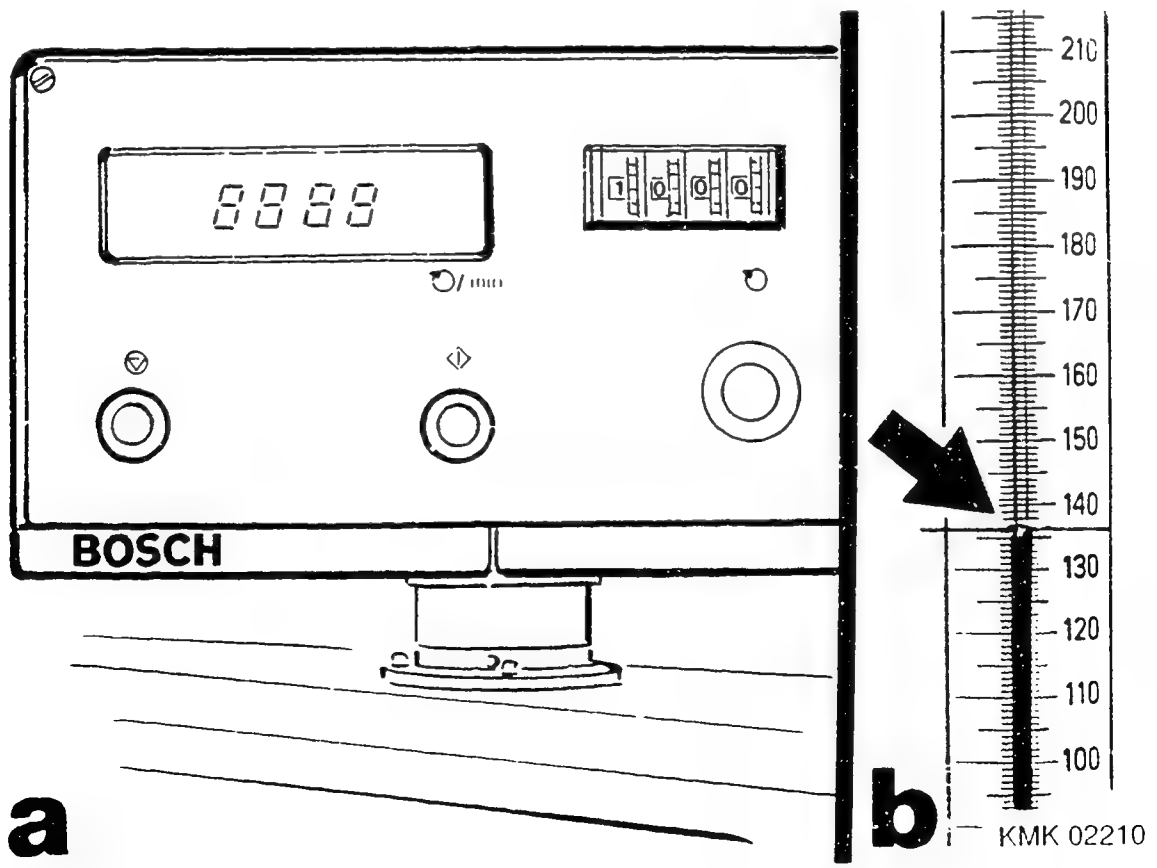


GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting full-load delivery

Set stroke counter to 1000-stroke measurement and trigger. Once stroke counter has completed measurement, read off and note down amount of calibrating oil in each graduate. For precise reading of the amount of calibrating oil in the graduate, there is a blue strip opposite the numbers on the graduate. In the case of a moistened graduate, the refraction produces two peaks - one on top of the other - at the surface of the liquid. The delivery is always to be read off at the scale division to which the two peaks point.

Continue: F08/1 Fig.: F07/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

The delivery given in the test specifications is the average value for all individual deliveries determined.
At the same time, a check is to be made as to whether the scatter permitted in the test specification is exceeded. This scatter designates the difference in delivery between the maximum and minimum delivery.

Continue: F08/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Example:
Prescribed delivery:
121...123 cm3/1000 strokes
Permissible scatter: 3 cm3/1000 strokes
1st measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 125 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes
Average: 123.5 cm3/1000 strokes

Continue: F09/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting full-load delivery

Scatter determined:
125 - 122 = 3 cm3/1000 strokes

This setting is not permitted.
The average value of all barrels is
not between 121 and 123 cm3/
1000 strokes.

Continue: F09/2

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting full-load delivery

2nd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 120 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.25 cm3/1000 strokes

Continue: F10/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting full-load delivery

Scatter determined:
124 - 120 = 4 cm3/1000 strokes

This setting is likewise not
permitted. The scatter is greater
than 3 cm3/1000 strokes.

Continue: F10/2

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting full-load delivery

3rd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 122 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.75 cm3/1000 strokes

Continue: F11/1

F10 ——

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting full-load delivery

Scatter determined:
124 - 122 = 2 cm3/1000 strokes

This setting is likewise permitted.
Injected-quantity values in parentheses apply only to checking the injection pump, n o t to adjustment.

Continue: F12/1

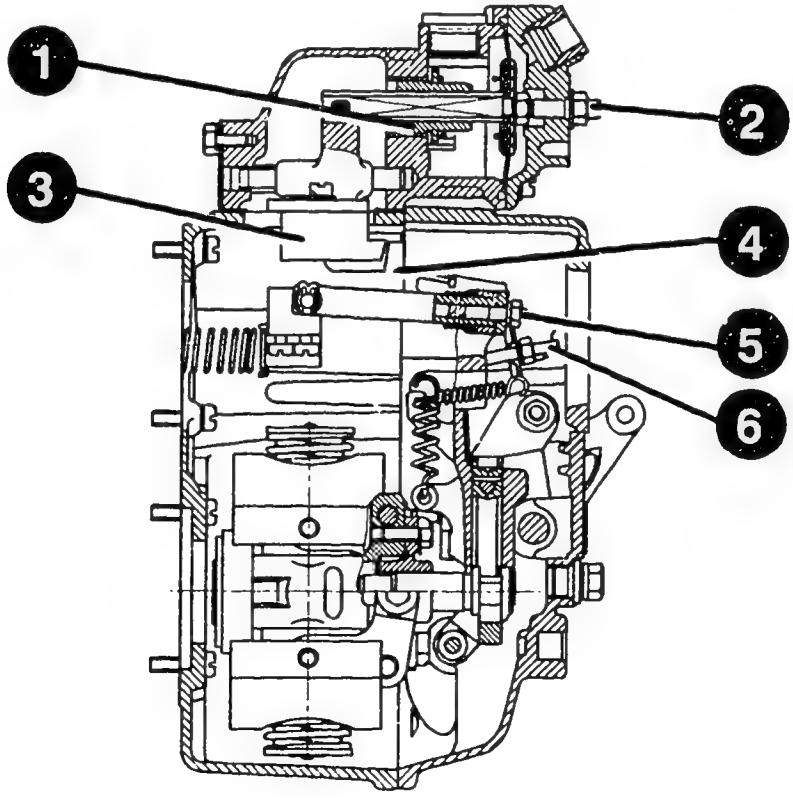
F11 ——

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting normal delivery

Take speed from respective test-specification sheet (test point without LDA pressure indication).
Correct delivery by turning normal-delivery adjusting screw (2).

Check start interlock and release.

Continue: F13/1 Fig.: F12/2



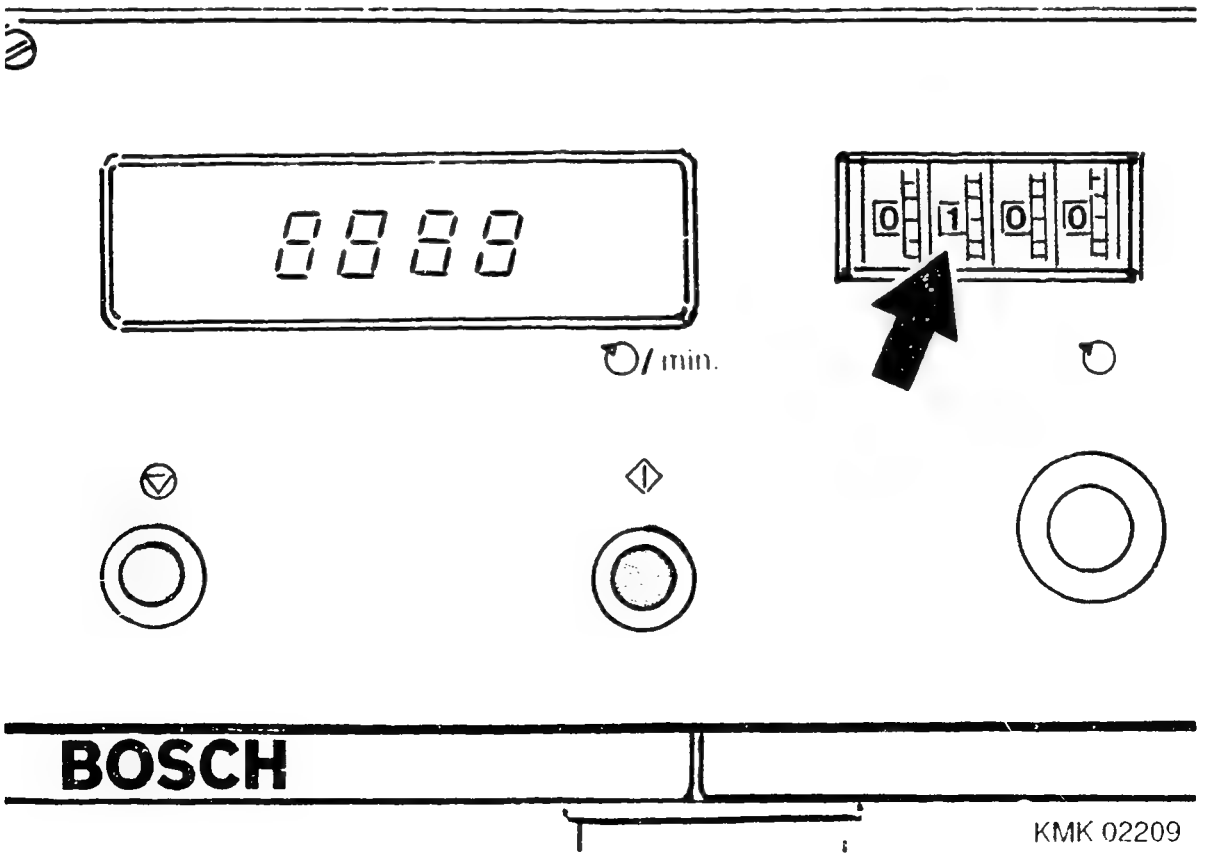
KMK02203

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting normal delivery

Run injection-pump assembly at prescribed speed. Set stroke counter to 100-stroke measurement and switch it on. The calibrating oil collected in the test-bench graduates is not used with the first measurement for determining the injected quantity, but rather to moisten the graduates. These are emptied again. The runout time is 29...31 seconds. Moisten graduates again if the interval after runout is longer than 10 minutes.

Continue: F14/1 Fig.: F13/2

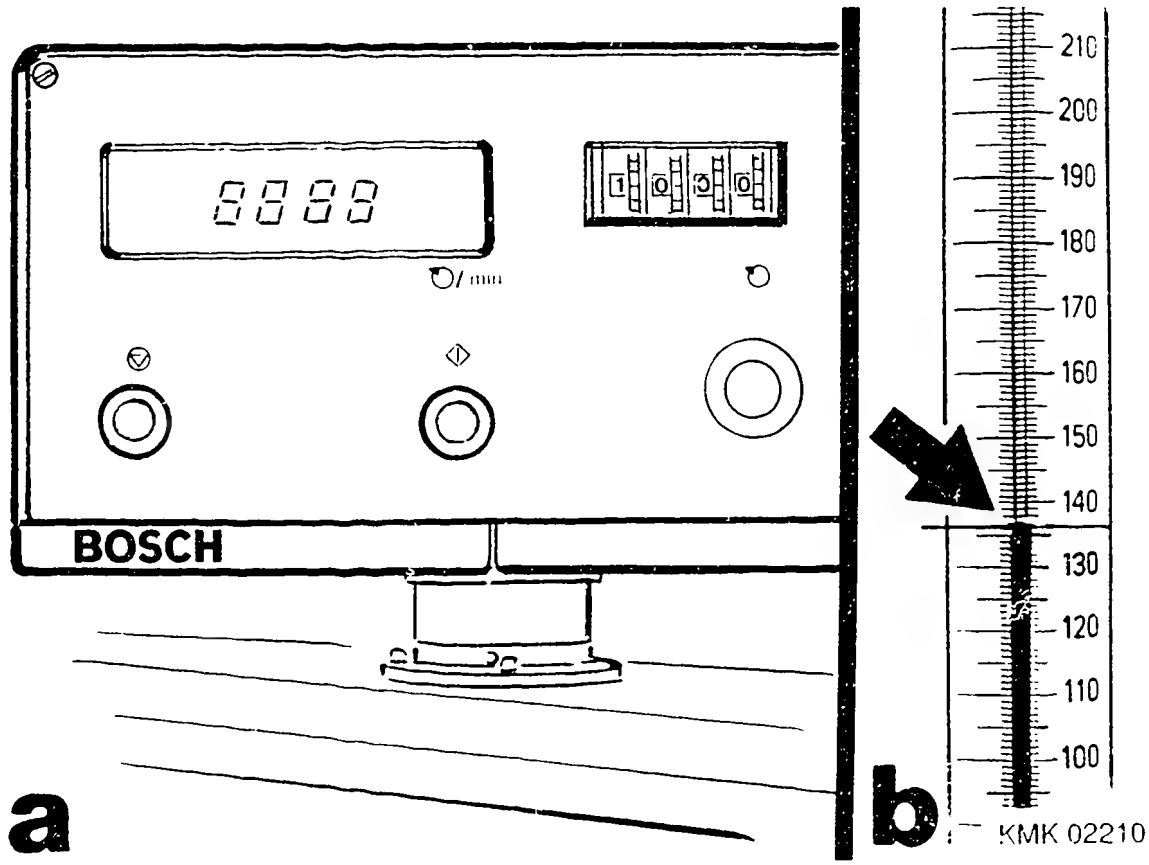


GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)

* Adjusting normal delivery

Set stroke counter to 1000-stroke measurement and trigger it. Once the stroke counter has completed the measurement, read off and note down the amount of calibrating oil in each graduate. For precise reading of the amount of calibrating oil in the graduate, there is a blue strip opposite the graduate numbers. When graduates are wet, the refraction produces two peaks - one on top of the other - at the surface of the liquid. The delivery is always to be read off at the scale division to which the two peaks are pointing.

Continue: F15/1 Fig.: F14/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting normal delivery

The delivery given in the test specifications represents the average value for all individual deliveries determined.
At the same time, a check is to be made as to whether the scatter permitted in the test specifications is exceeded. The scatter designates the difference in quantity between the maximum and minimum delivery rate.

Continue: F15/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting normal delivery

Example:
Prescribed delivery:
121...123 cm3/1000 strokes
Permitted scatter: 3 cm3/1000 strokes
1st measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 125 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes
Average: 123.5 cm3/1000 strokes

Continue: F16/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting normal delivery

Scatter determined:
125 - 122 = 3 cm3/1000 strokes

This setting is not permitted.
The average value of all barrels is
not between 121 and 123 cm3/
1000 strokes.

Continue: F16/2

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting normal delivery

2nd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 120 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.25 cm3/1000 strokes

Continue: F17/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting normal delivery

Scatter determined:
124 - 120 = 4 cm3/1000 strokes

This setting is likewise not
permitted. The scatter is greater than
3 cm3/1000 strokes.

Continue: F17/2

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting normal delivery

3rd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 122 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.75 cm3/1000 strokes

Continue: F18/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Adjusting normal delivery

Scatter determined:
124 - 122 = 2 cm3/1000 strokes

This setting is likewise permitted.
Injected-quantity values in
parentheses apply only to checking the
injection pump, n o t to adjustment.

Continue: F26/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile
as of Coordinate F26/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

The following safety precautions are to be heeded in additon to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: F19/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident.
   Furthermore, damage to the unit under test and incorrect settings could result.

Continue: F20/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: F20/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: F21/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: F21/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: F22/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: F22/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Set control lever to max. deflection. Run injection pump at prescribed speed and measure delivery. The value stated in the test-specification sheet must be attained with new setting. The value in parentheses only applies to injection-pump checking.

Continue: F23/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

If several measurement points are indicated for the delivery profile, these are to be checked one after the other observing the prescribed speed. The delivery indicated in the test-specification sheet is the average value for all individual deliveries determined. At the same time, a check is to be made as to whether the scatter permitted in the test specifications is exceeded. The scatter is the difference in quantity between the maximum and minimum delivery rate.

Continue: F23/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Example:
Prescribed delivery:
121...123 cm3/1000 strokes
Permitted scatter: 3 cm3/1000 strokes
1st measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 125 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes
Average: 123.5 cm3/1000 strokes

Continue: F24/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Checking delivery profile

Scatter determined:
125 - 122 = 3 cm3/1000 strokes

This setting is not permitted.
The average value of all barrels is
not between 121 and 123 cm3/
1000 strokes.

Continue: F24/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Checking delivery profile

2nd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 120 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.25 cm3/1000 strokes

Continue: F25/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Checking delivery profile

Scatter determined:
124 – 120 = 4 cm3/1000 strokes

This setting is likewise not
permitted. The scatter is greater than
3 cm3/1000 strokes.

Continue: G05/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: F26/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: F27/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: F27/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile
Safety precautions
4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: F28/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: F28/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: G01/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: G01/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Set control lever to max. deflection. Set specified charge-air pressure. Run injection pump at prescribed speed and measure delivery. The value stated in the test-specification sheet must be attained with new setting. The value in parentheses only applies to injection-pump checking. If several measurement points are given for the delivery profile, these are to be checked one after the other paying attention to the prescribed charge-air pressures and speeds.

Continue: G02/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

The delivery indicated in the test-specification sheet is the average value for all individual deliveries determined. At the same time, a check is to be made as to whether the scatter permitted in the test specifications is exceeded. The scatter is the difference in quantity between the maximum and minimum delivery rate.

Continue: G02/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Checking delivery profile

Example:
Prescribed delivery:
121...123 cm3/1000 strokes
Permitted scatter: 3 cm3/1000 strokes
1st measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 125 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes
Average: 123.5 cm3/1000 strokes

Continue: G03/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Checking delivery profile

Scatter determined:
125 - 122 = 3 cm3/1000 strokes

This setting is not permitted.
The average value of all barrels is
not between 121 and 123 cm3/
1000 strokes.

Continue: G03/2

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Checking delivery profile

2nd measurement
Barrel 1:
Delivery: 124 cm3/1000 strokes
Barrel 2:
Delivery: 122 cm3/1000 strokes
Barrel 3:
Delivery: 120 cm3/1000 strokes
Barrel 4:
Delivery: 123 cm3/1000 strokes

Average: 122.25 cm3/1000 strokes

Continue: G04/1

GOVERNORS WITH MANIFOLD-PRESSURE
COMPENSATOR (LDA)
* Checking delivery profile

Scatter determined:
124 - 120 = 4 cm3/1000 strokes

This setting is likewise not
permitted. The scatter is greater than
3 cm3/1000 strokes.

Continue: G10/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation
as of Coordinate: G10/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: G05/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: G06/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G06/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation
Safety precautions
4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G07/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: G07/2

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: G08/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

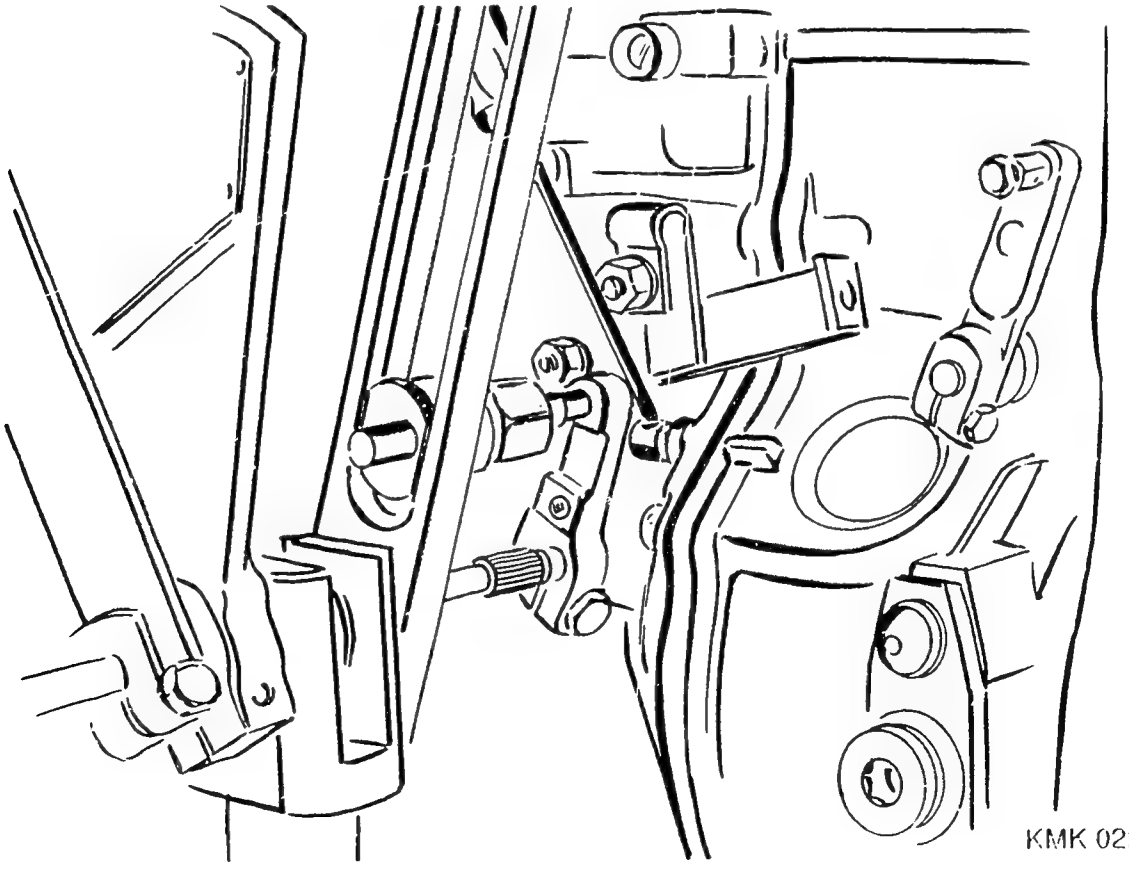
8. Goggles are to be worn during testing.

Continue: G09/1

GOVERNORS WITHOUT MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Remove protractor.
Increase speed and simultaneously adjust control lever.
Set dial indicator to zero.
Adjust speed.
Control lever is at end stop.
Adjust stop screw (see picture) such that control-rod-travel dial indicator indicates a drop in control-rod travel of 1 mm.

Continue: G15/1 Fig.: G09/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: G10/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: G11/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G11/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G12/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: G12/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: G13/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

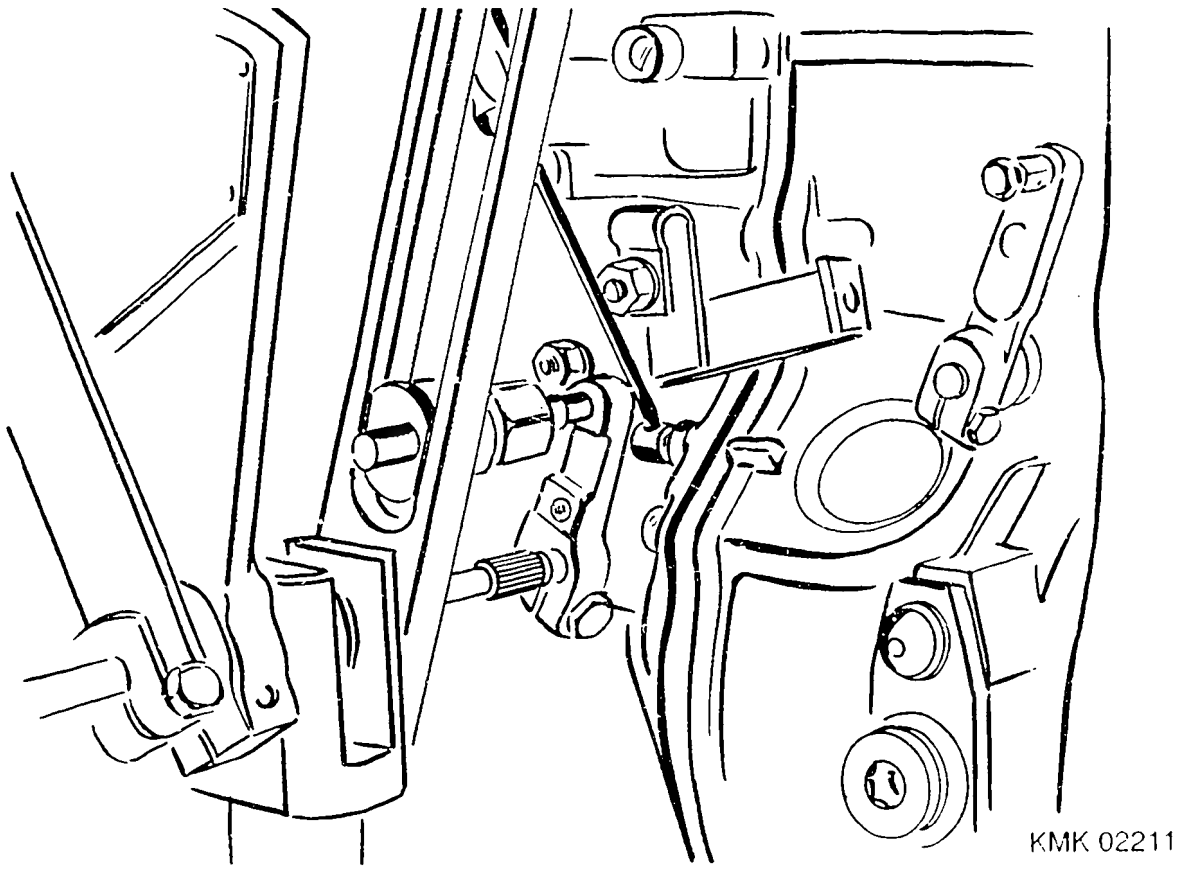
8. Goggles are to be worn during testing.

Continue: G14/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA)
* Adjusting speed limitation

Remove protractor.
Apply max. charge-air pressure to LDA.
Increase speed and simultaneously adjust control lever.
Set dial indicator to zero.
Adjust speed.
Control lever is at end stop.
Adjust stop screw (see picture) such that control-rod-travel dial indicator shows a decrease in control-rod travel of 1 mm.

Continue: G15/1 Fig.: G14/2

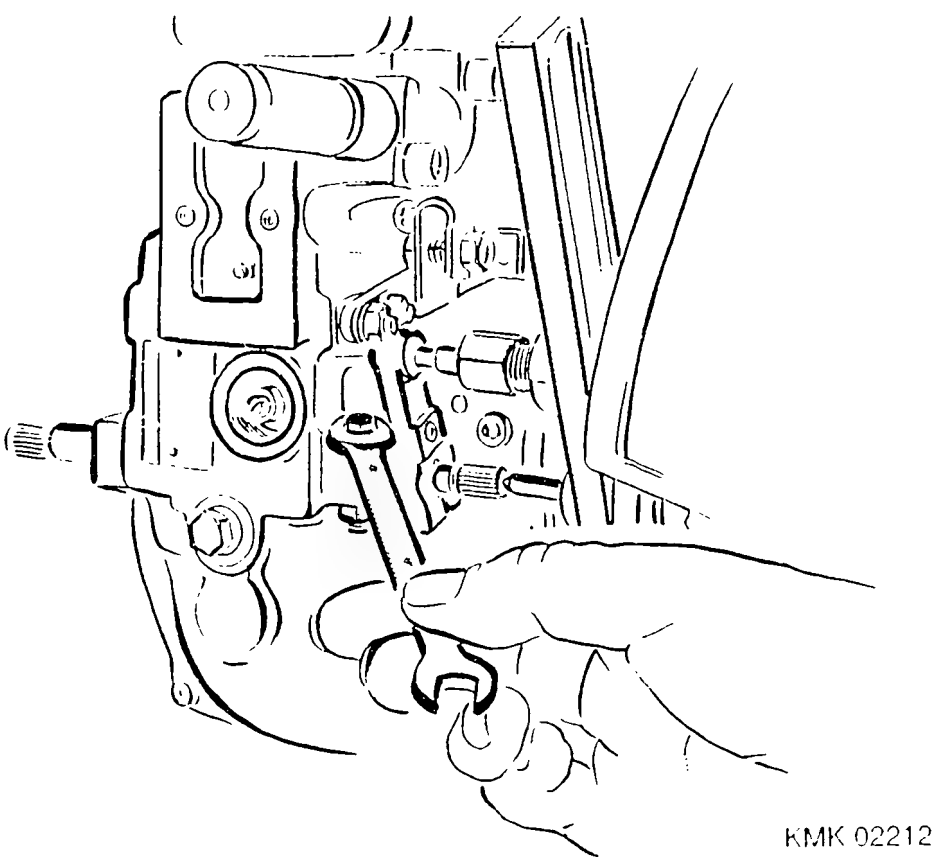


ADJUSTING IDLE AND SHUTOFF STOP
* Governors w i t h stop lever
as of Coordinate G16/1

ADJUSTING IDLE AND SHUTOFF STOP
* Governors w i t h o u t stop lever

Speed zero.
Control lever in shutoff position.
Remove cover from shutoff stop screw and set scale of control-rod-travel dial indicator to zero.
Adjust approx. 0.5 mm control-rod travel at shutoff stop screw and secure stop screw with lock nut.

Continue: G22/1 Fig.: G15/2



ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
– Adjusting idle

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

1. Damaged injection pumps are not to be tested.

Continue: G16/2

ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
– Adjusting idle

Safety precautions

2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: G17/1

ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
- Adjusting idle

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G17/2

ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
- Adjusting idle
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G18/1

ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
– Adjusting idle

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: G18/2

ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
– Adjusting idle

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: G19/1

ADJUSTING IDLE AND SHUTOFF STOP
* Governors with stop lever
– Adjusting idle

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

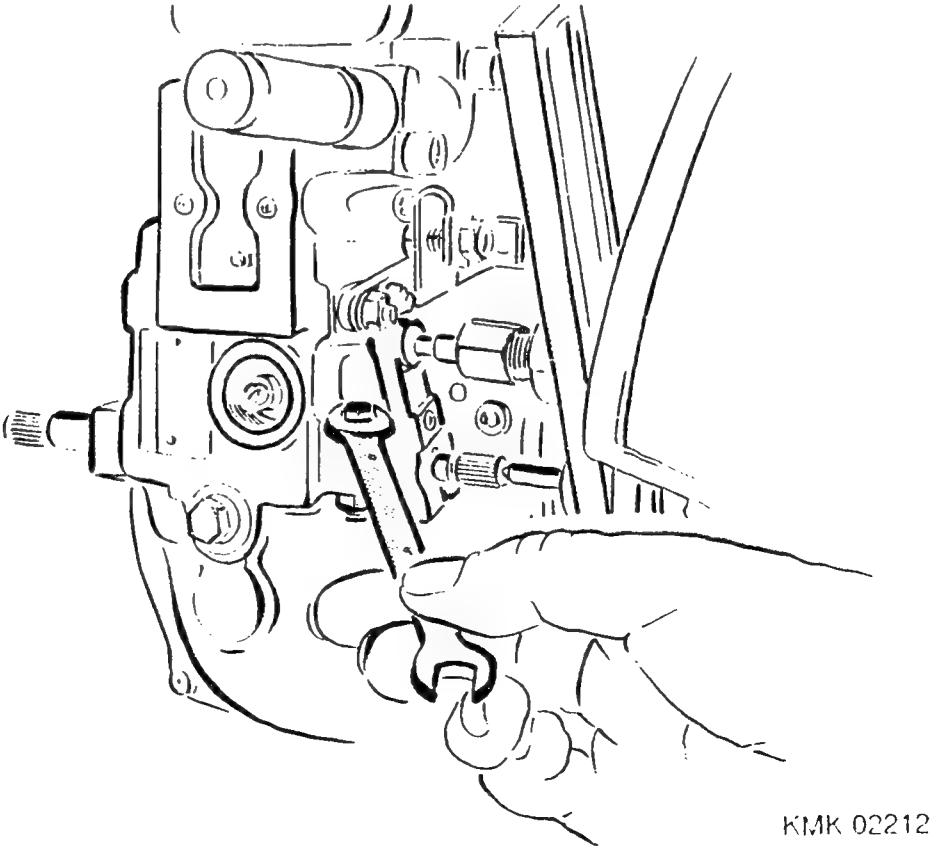
8. Goggles are to be worn during testing.

Continue: G20/1

ADJUSTING IDLE AND SHUTOFF STOP
* Governors w i t h stop lever
– Adjusting idle

Set appropriate speed.
Control lever is at idle stop.
Adjust stop screw until corresponding delivery is reached.
Secure stop screw with lock nut.

Continue: G21/1 Fig.: G20/2



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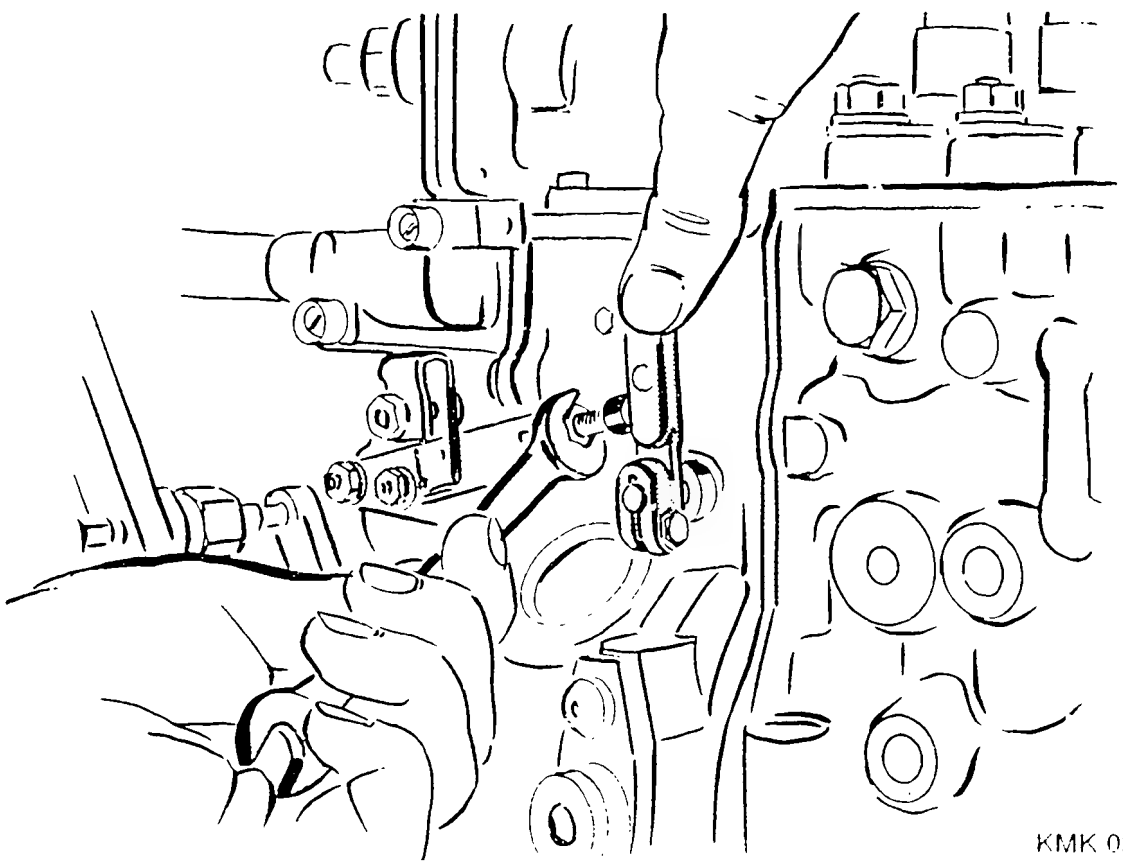
ADJUSTING IDLE AND SHUTOFF STOP
* Governors w i t h stop lever
- Adjusting shutoff stop

Speed zero.
Pull stop lever to stop.
Remove cover from shutoff stop screw and set scale of control-rod-travel dial indicator to zero.
Set approx. 0.5 mm control-rod travel at shutoff stop screw and secure stop screw with lock nut.

Continue: G22/1 Fig.: G21/2



ADJUSTING STARTING FUEL DELIVERY

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: G22/2

ADJUSTING STARTING FUEL DELIVERY

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: G23/1

ADJUSTING STARTING FUEL DELIVERY

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G23/2

ADJUSTING STARTING FUEL DELIVERY

Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: G24/1

ADJUSTING STARTING FUEL DELIVERY

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: G24/2

ADJUSTING STARTING FUEL DELIVERY

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: G25/1

ADJUSTING STARTING FUEL DELIVERY

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: G26/1

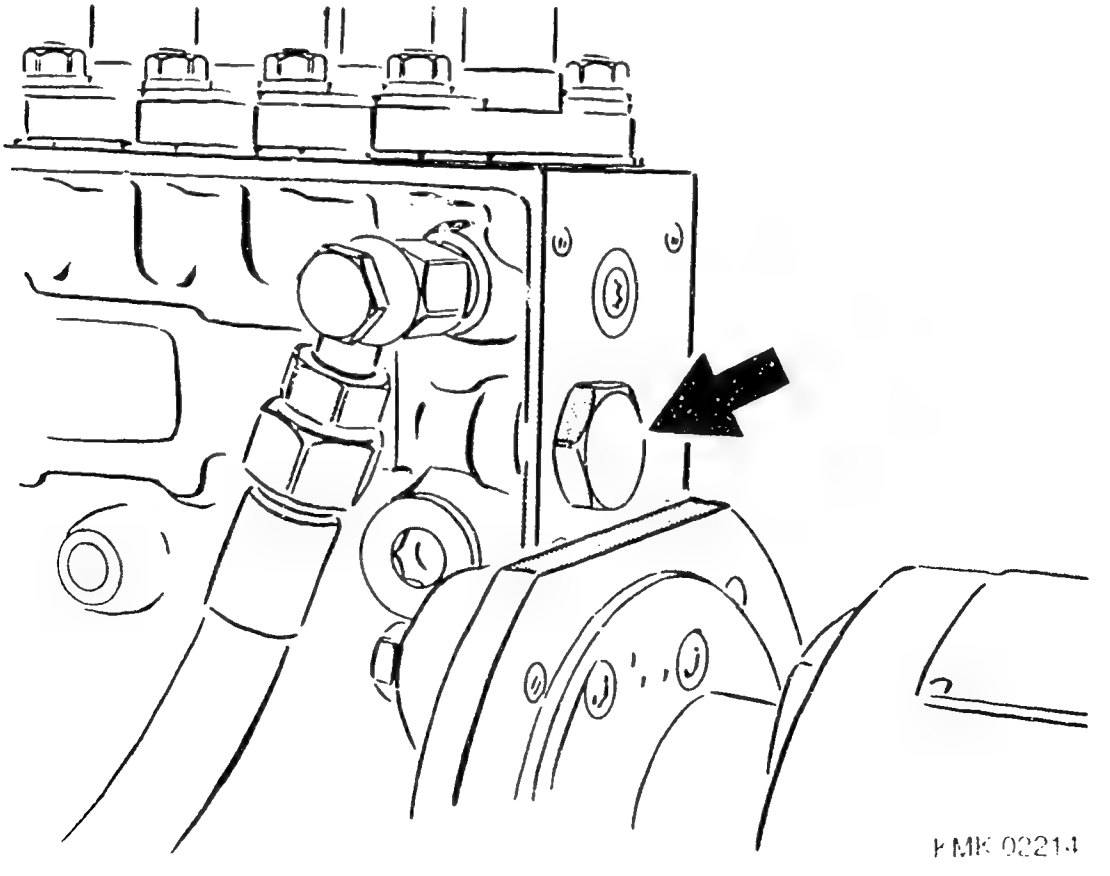
ADJUSTING STARTING FUEL DELIVERY

Remove control-rod-travel measuring device.
Control lever at end stop.
Set speed as per test-specification sheet.
Limit starting fuel delivery at stop screw of control-rod cap (see picture).
Fit all closing covers with new seals.
Unclamp and seal pump.

Testing over.

GOVERNORS WITH INTERMEDIATE-SPEED STOP (ZDE), as of Coordinate J01/1

Continue: N18/1 Fig.: G26/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: H01/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: H02/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly. Non-observance can cause the connecting nipple of the test-pressure line to be damaged. A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: H02/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps"). If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: H03/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: H03/2

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: H04/1

GOVERNORS WITH MANIFOLD–PRESSURE COMPENSATOR (LDA) AND BUILT–IN FULL–LOAD STOP

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

Continue: H05/1

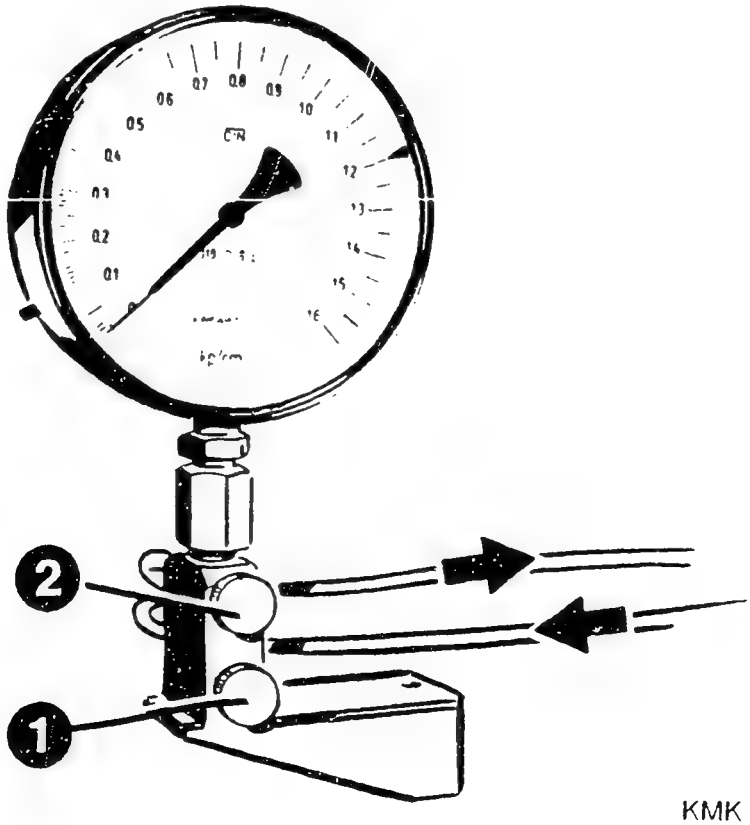
GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Checking manifold-pressure compensator (LDA)

Make connection between pressure reducer and bottom connection of adjuster. Connect LDA to top connection of adjuster:

Adjusting screw 1 (white, bottom) for adjusting pressure
Screw plug 2 (black, top) for leak test

Continue: H06/1 Fig.: H05/2

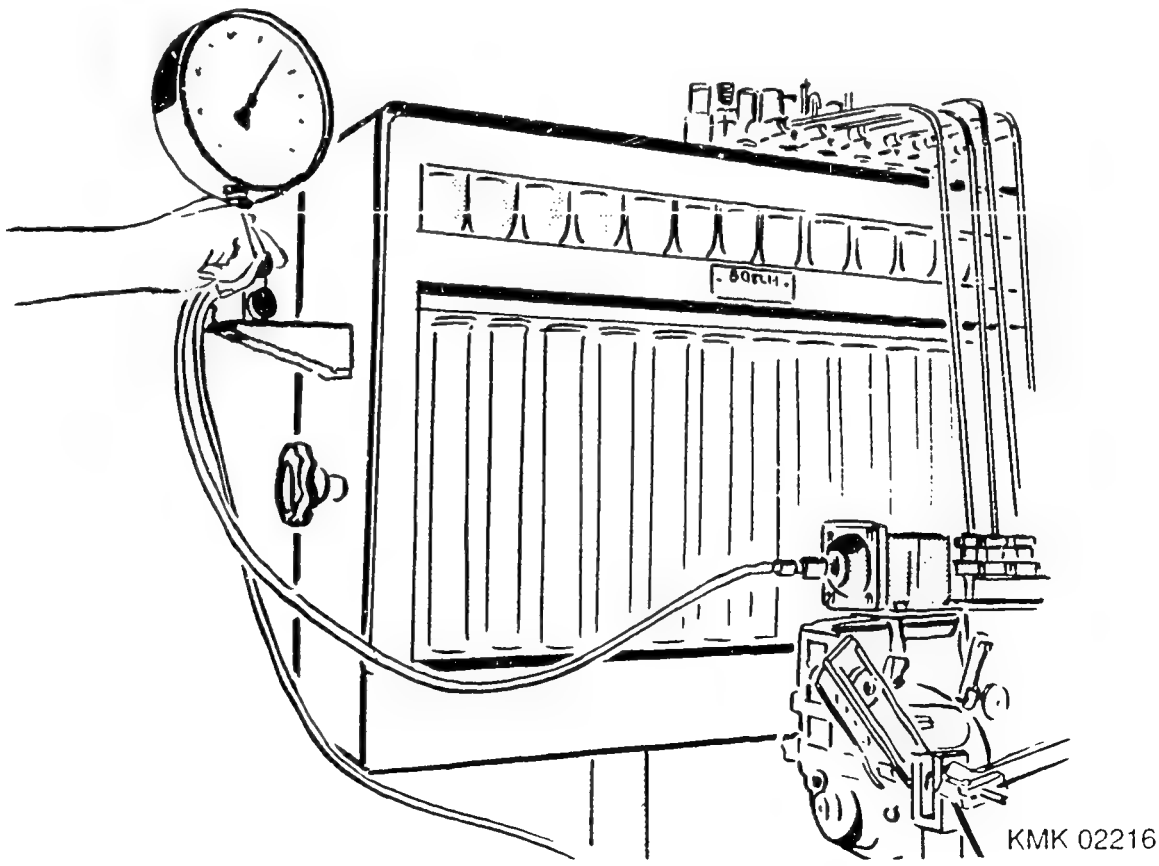


KMK 02207

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP
* LDA leak test

Install LDA on governor housing with fastening screws.
Set 1.0 bar charge-air pressure at adjusting screw "a" of adjuster.
Seal screw plug "b" and shutoff air supply.
The pressure gauge must not indicate any drop in pressure.

Continue: H07/1 Fig.: H06/2

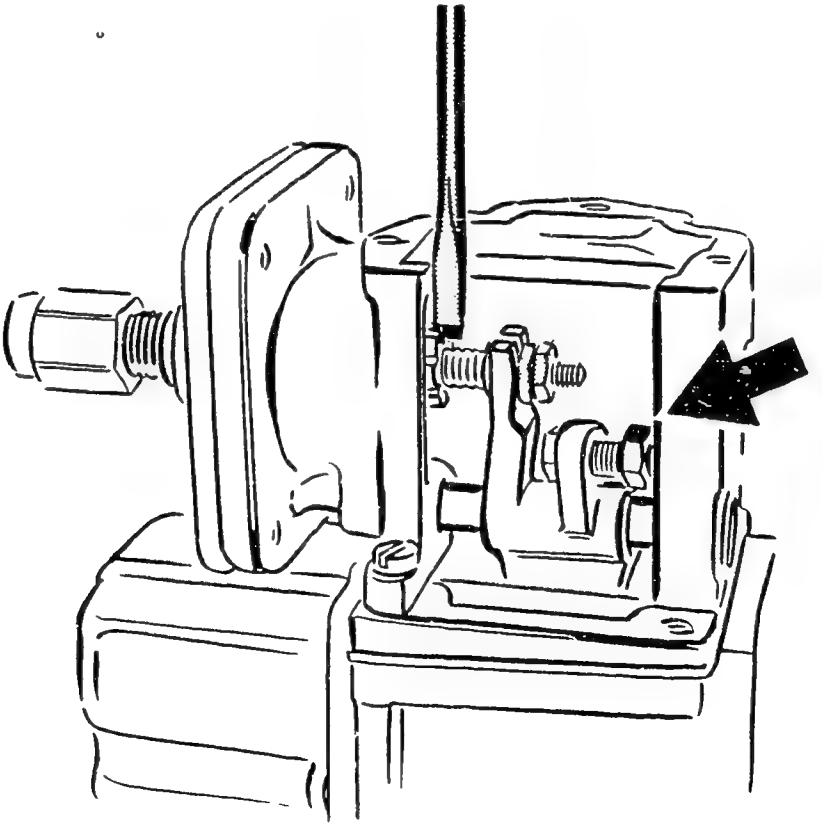


GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Checking LDA adjustment

Operate injection pump at stated speed.
Slowly increase compressed air from 0 bar and observe full-load stop screw in LDA.
At stated charge-air pressure, full-load adjusting screw must make reliable contact with end stop.
If necessary, release diaphragm spring in LDA at detent nut.

Continue: H08/1 Fig.: H07/2



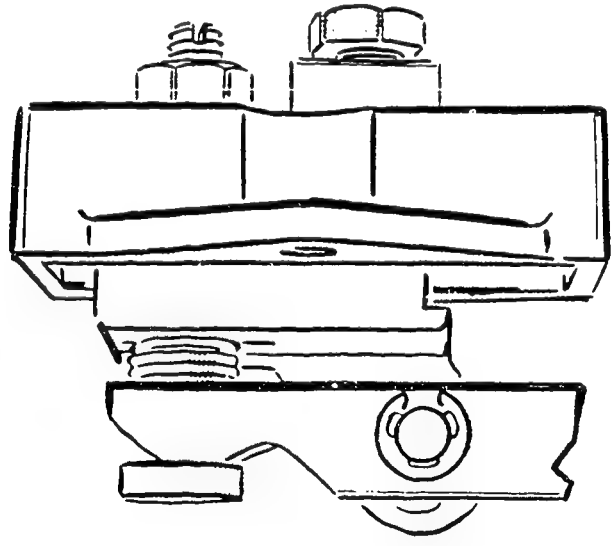
KMK 02217

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Stop-rocker preadjustment

Loosen lock nut of adjusting screw.
Move adjusting screw of stop rocker to center position.
Tighten lock nut.

Continue: H09/1 Fig.: H08/2



KMK 02218

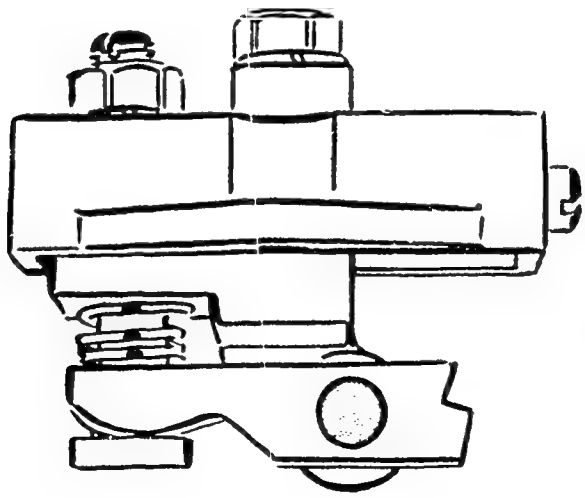
GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Full-load stop without torque control

Set zero charge-air pressure.
Allow pump to run below idle speed.
Slowly increase speed and check - by way of slow advancement of control lever several times - the speed up to which the rocker moves forward beneath the lug cam to start position.

Switching should take place at a speed of 50...100 1/min below idle speed.

Continue: H10/1 Fig.: H09/2



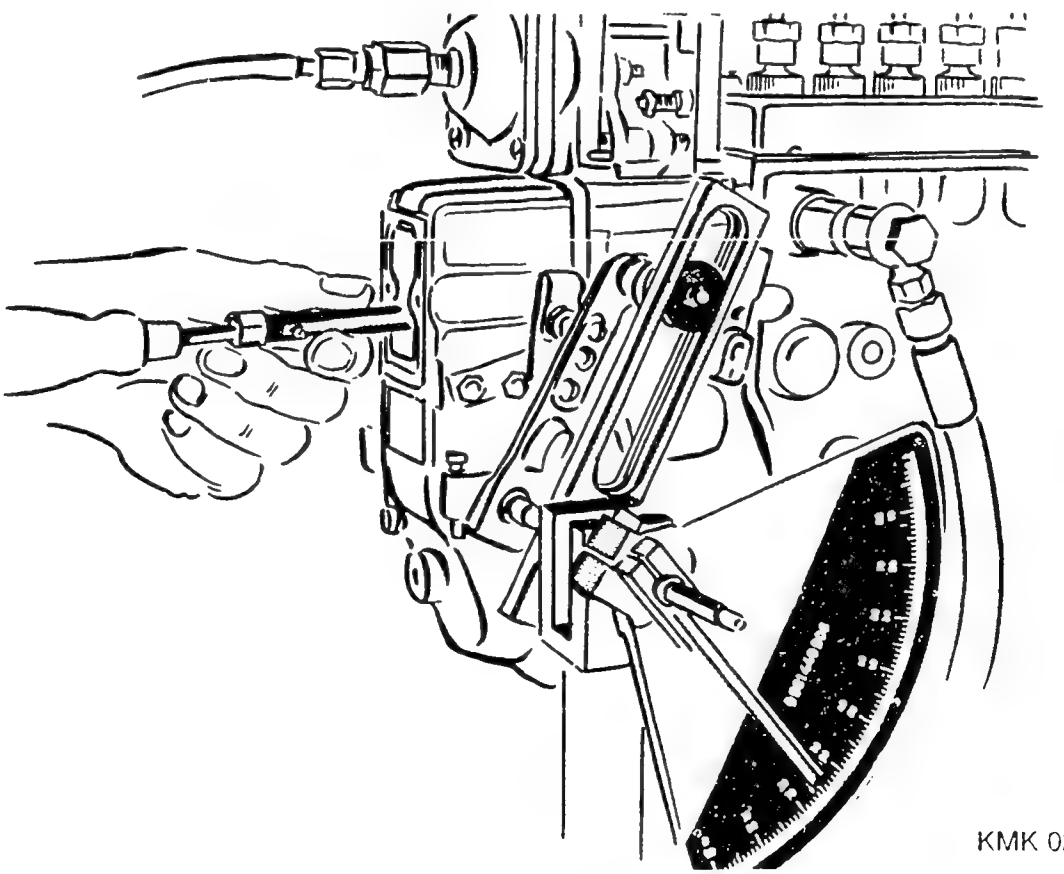
KMK 02198

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP
* Full-load stop without torque control

Turning the rocker adjusting screw in a clockwise direction adjusts the switching to higher speed.
Secure adjusting screw of rocker with lock nut.

Set max. charge-air pressure at LDA.
Make precise speed setting and simultaneously adjust control lever.
Secure control lever at previously established value.

Continue: H11/1 Fig.: H10/2

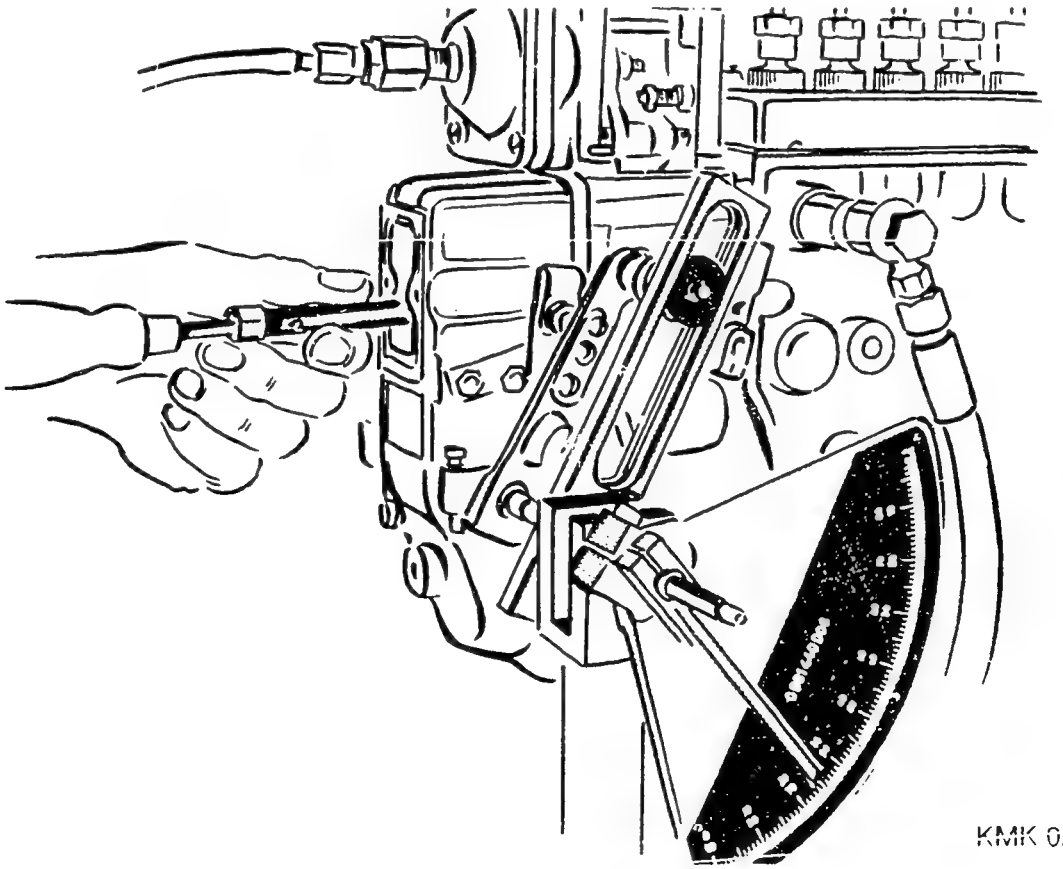


KMK 02220

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP
* Full-load stop with torque control

Set max. charge-air pressure.
Set prescribed speed and simultaneously adjust control lever.
Secure control lever at previously established value.
Move over cam path with rocker. Loosen lock nut and alter position of rocker with adjusting screw; pay attention to control-rod-travel dial indicator whilst doing so. Establish and set reversal point.

Continue: H12/1 Fig.: H11/2



GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Full-load stop with torque control

The max. control-rod travel is to be set at the rocker in the area in which the control-rod travel increases and then decreases in same adjustment direction. Secure adjusting screw of rocker with lock nut.

Checking adjustment

Increasing and reducing adjustment speed produces smaller control-rod travel.

The maximum control-rod travel must be precisely at adjustment speed.

Important! Adjustment speed must be set e x a c t l y .

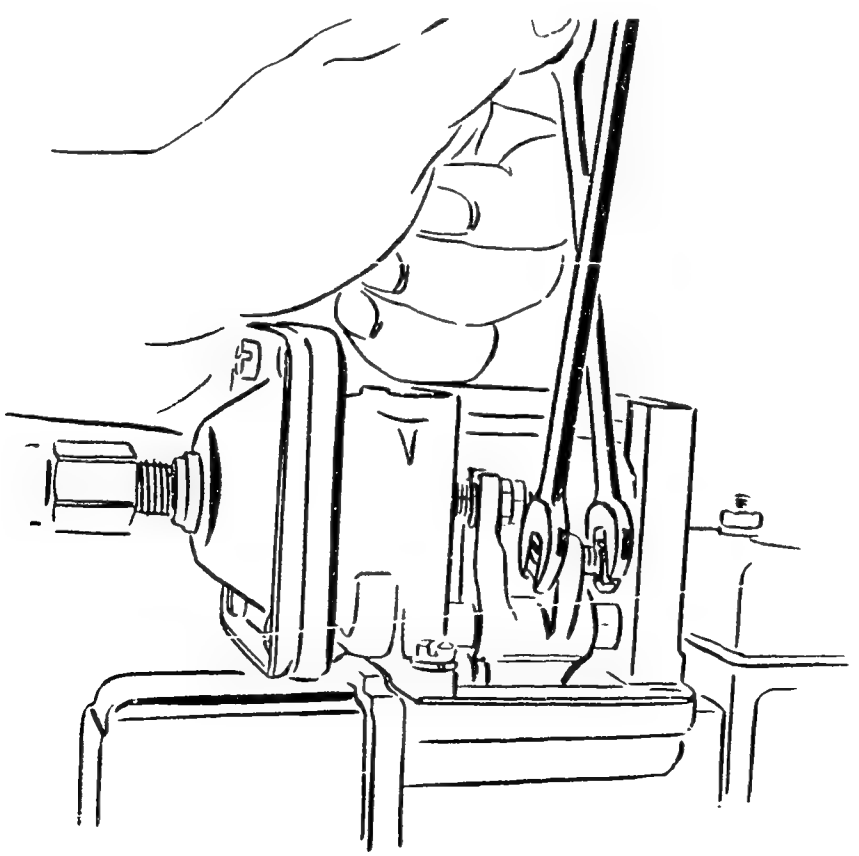
Continue: H13/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP
* Full-load stop with torque control

Run injection pump at prescribed speed.
Set control-rod travel with full-load stop screw.
Secure full-load stop screw after every adjustment.

Note:
The setting of the rocker is to be checked whenever the full-load control-rod travel has been adjusted.

Continue: H14/1 Fig.: H13/2



KMK 02221

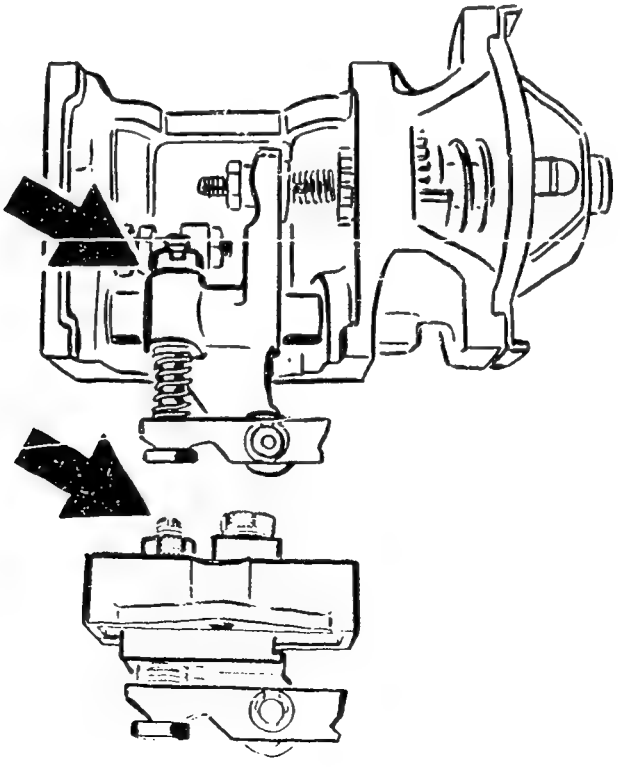
GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Full-load stop with torque control

- Checking torque-control profile

Note:
This test is only required if a torque-control cam is fitted.
Apply max. charge-air pressure to LDA.
Set speeds indicated in test-specification sheet and read off control-rod travels. Perform correction by way of adjusting screw (see picture). Screwing in the adjusting screw increases the control-rod travels at high speeds and reduces them at low speeds.

Continue: H15/1 Fig.: H14/2



KMK 02222

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Full-load stop with torque control

- Checking torque-control profile

Note:
Whenever the position of the torque-control cam has been altered, it is necessary to adjust the following

- Rocker
- Full load
- Torque-control profile

These three functions have a mutual influence. The corrections become smaller and smaller on approaching the set points. The adjusting screws are to be secured with lock nuts after every adjustment.

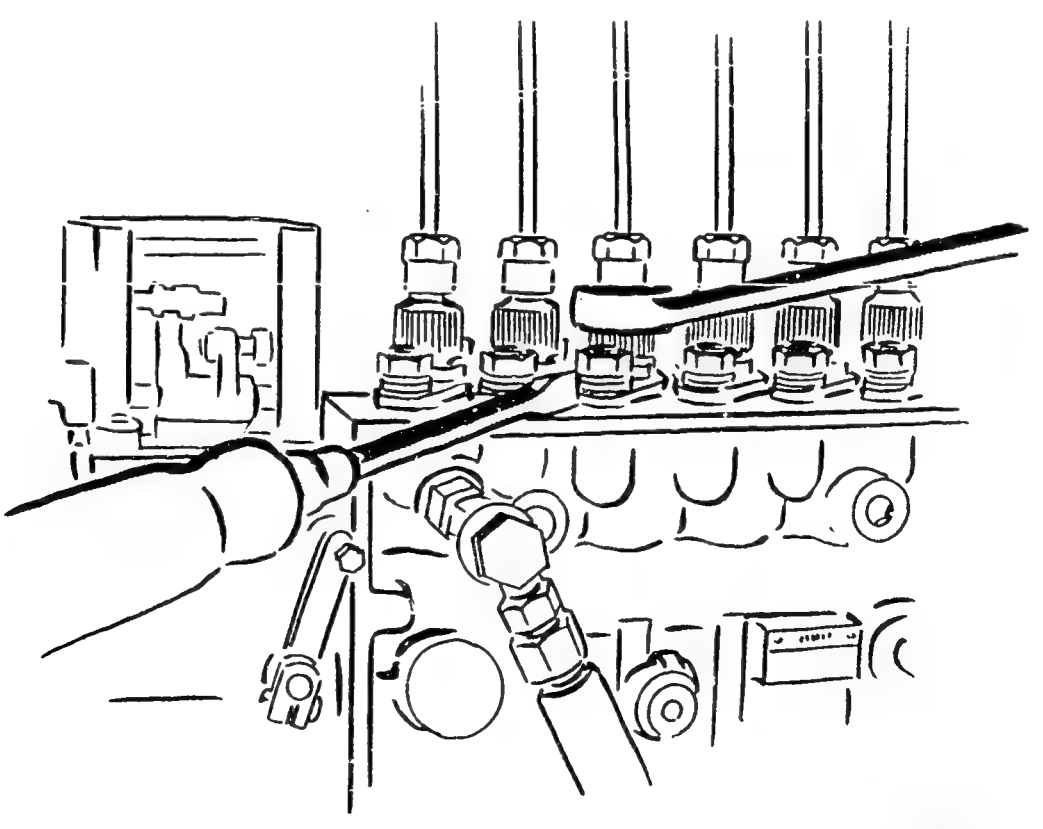
Continue: H16/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting full-load delivery

Set prescribed LDA pressures and corresponding speeds as per test-specification sheet.
The prescribed full-load deliveries are not to be corrected at the full-load stop of the governor.
Note:
Full-load control-rod travel, torque-control profile and start interlock are mutually influencing.

Continue: H17/1 Fig.: H16/2



KMK 02223

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting full-load delivery

Slight deviations can be offset with the fine correction screw (approx. 0.5 mm control-rod travel). Major deviations are to be adjusted by way of the uniform delivery feature (see picture).

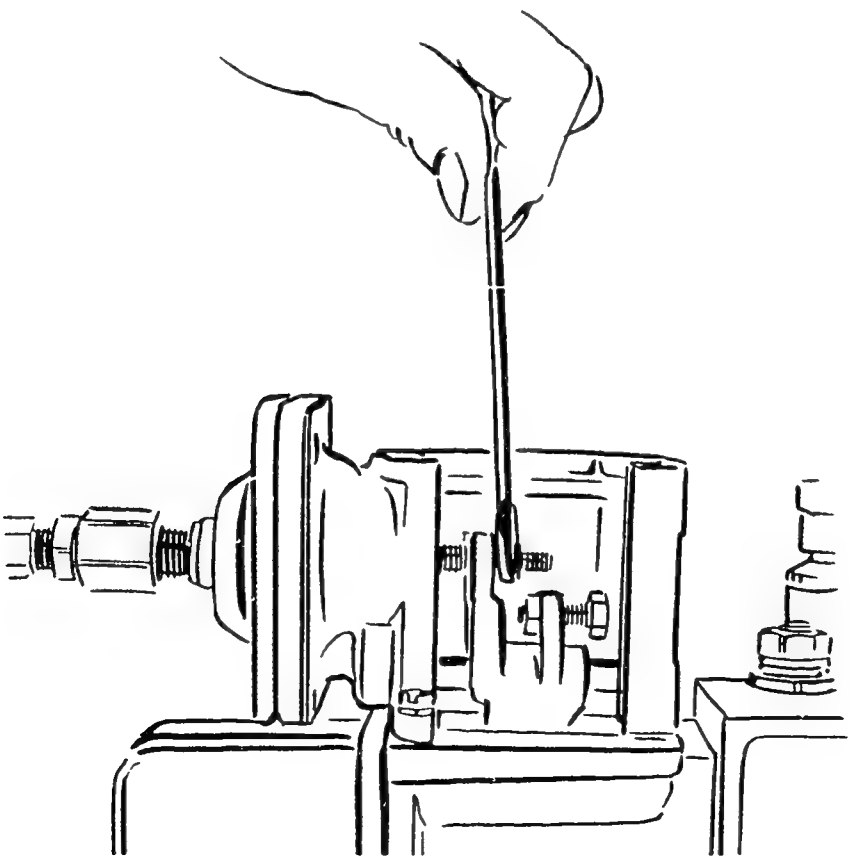
Continue: H18/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting normal delivery

Charge-air pressure 0 bar. Prescribed speed as per test-specification sheet. The delivery indicated in the test-specification sheet is to be set with the stop nut (see picture).

Continue: H19/1 Fig.: H18/2



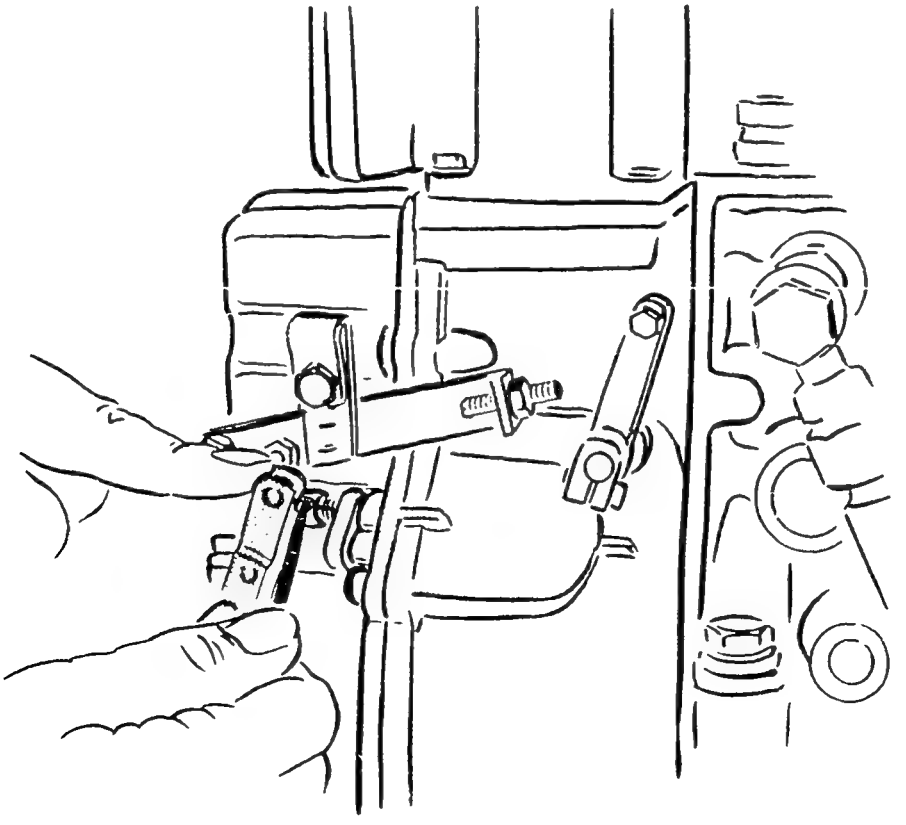
KMK 02224

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting speed limitation

Remove protractor.
Apply max. charge-air pressure to LDA.
Increase speed and simultaneously adjust control lever.
Set dial indicator to zero.
Adjust speed.
Control lever is at end stop.
Adjust stop screw (see picture) such that control-rod-travel dial indicator shows a decrease in control-rod travel of 1 mm.

Continue: H20/1 Fig.: H19/2



KMK 02225

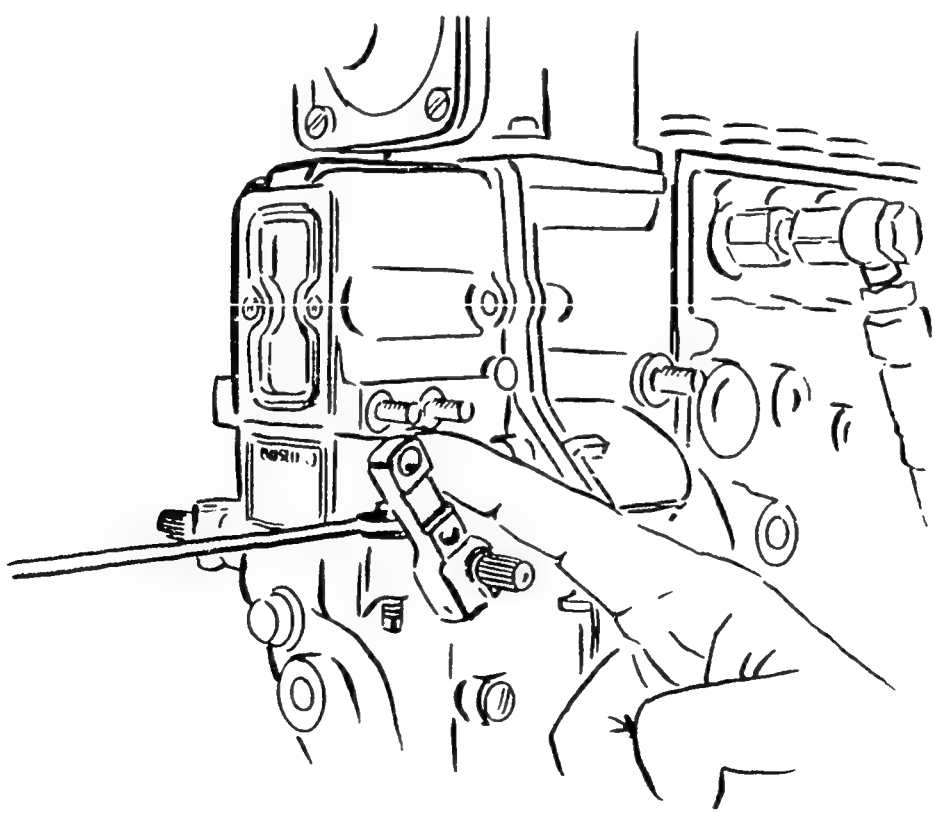
GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting idle and shutoff stop

– Governors w i t h o u t stop lever.

Speed zero.
Control lever in stop position.
Remove cover from shutoff stop screw and set scale of control-rod-travel dial indicator to zero.
Set approx. 0.5 mm control-rod travel at shutoff stop screw and secure stop screw with lock nuts (see picture).

Continue: H21/1 Fig.: H20/2



KMK 02226

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting idle and shutoff stop

- Governors w i t h stop lever

Adjusting idle

Set appropriate speed.
Control lever makes contact with idle stop.
Adjust stop screw until corresponding delivery is attained.
Secure stop screw with lock nut (see picture).

Continue: H22/1

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

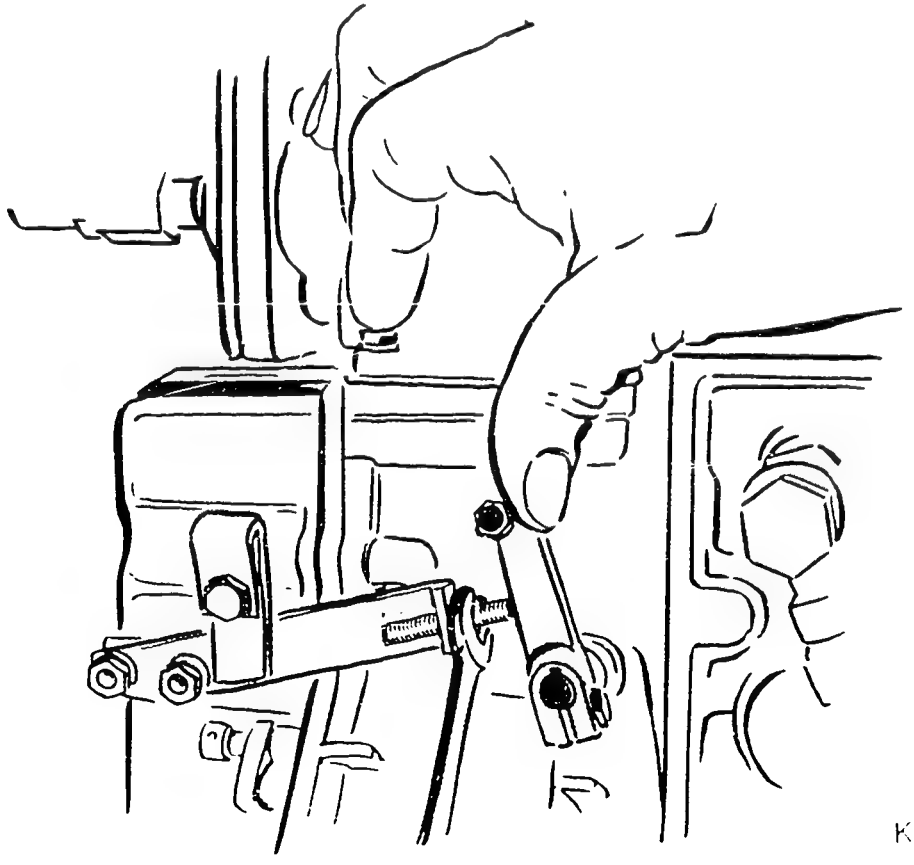
* Adjusting idle and shutoff stop

– Governors w i t h stop lever

Adjusting shutoff stop

Speed zero.
Pull stop lever to stop.
Remove cover from shutoff stop screw and set scale of control-rod-travel dial indicator to zero.
Set approx. 0.5 mm control-rod travel at shutoff stop screw and secure stop screw with lock nut.

Continue: H23/1 Fig.: H22/2



KMK 02227

GOVERNORS WITH MANIFOLD-PRESSURE COMPENSATOR (LDA) AND BUILT-IN FULL-LOAD STOP

* Adjusting starting fuel delivery

Remove control-rod-travel measuring device.
Control lever at end.
Set speed as per test-specification sheet.
Limit starting fuel delivery at stop screw of control-rod cap (see picture).
Fit all closing covers with new seals.

Testing over.

Unclamp and seal pump.

Continue: J01/1 Fig.: H23/2

KMK 02228

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)

Safety precautions

The following safety precautions are to be heeded in addition to the safety precautions outlined in the operating instructions for Bosch injection-pump test benches:

Continue: J01/2

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)

Safety precautions

1. Damaged injection pumps are not to be tested.
2. Use is to be made of the tools, drives and clamping parts prescribed in these instructions as otherwise there would be a danger of accident. Furthermore, damage to the unit under test and incorrect settings could result.

Continue: J02/1

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)

Safety precautions

3. Install test-pressure lines perpendicularly on delivery-valve holders and calibrating nozzle-holder assembly.
Non-observance can cause the connecting nipple of the test-pressure line to be damaged.
A defective connecting nipple may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: J02/2

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)
Safety precautions

4. Test-pressure lines which are kinked and damaged at the sealing surfaces of the connecting nipple, as well as test-pressure lines with impermissible bending radii, are to be renewed (refer to W-400/000: "Test benches, test equipment and instructions for testing fuel-injection pumps").
If use is made of damaged test-pressure lines for test purposes, this will result in adjustment errors. A damaged line may permit calibrating oil to emerge at high pressure and thus cause injury.

Continue: J03/1

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)

Safety precautions

5. Check fuel-injection pump by hand for freedom of movement before driving it with injection-pump test bench.
   If the pump drive has siezed or if moving parts of the pump are sticking, and the injection pump is nevertheless driven, there is a danger of further damage to the fuel-injection pump and to the test bench.

Continue: J03/2

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)

Safety precautions

6. The unit under test may only be checked in the prescribed direction of rotation and at the maximum prescribed speed.
   The direction of rotation and the maximum prescribed speed are indicated in the appropriate test-specification sheet.

Continue: J04/1

GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)

Safety precautions

7. Pay attention to moving parts when working on partly open pump and governor housings.
   D a n g e r o f i n j u r y !
   Make exclusive use of prescribed protective devices and tools.

8. Goggles are to be worn during testing.

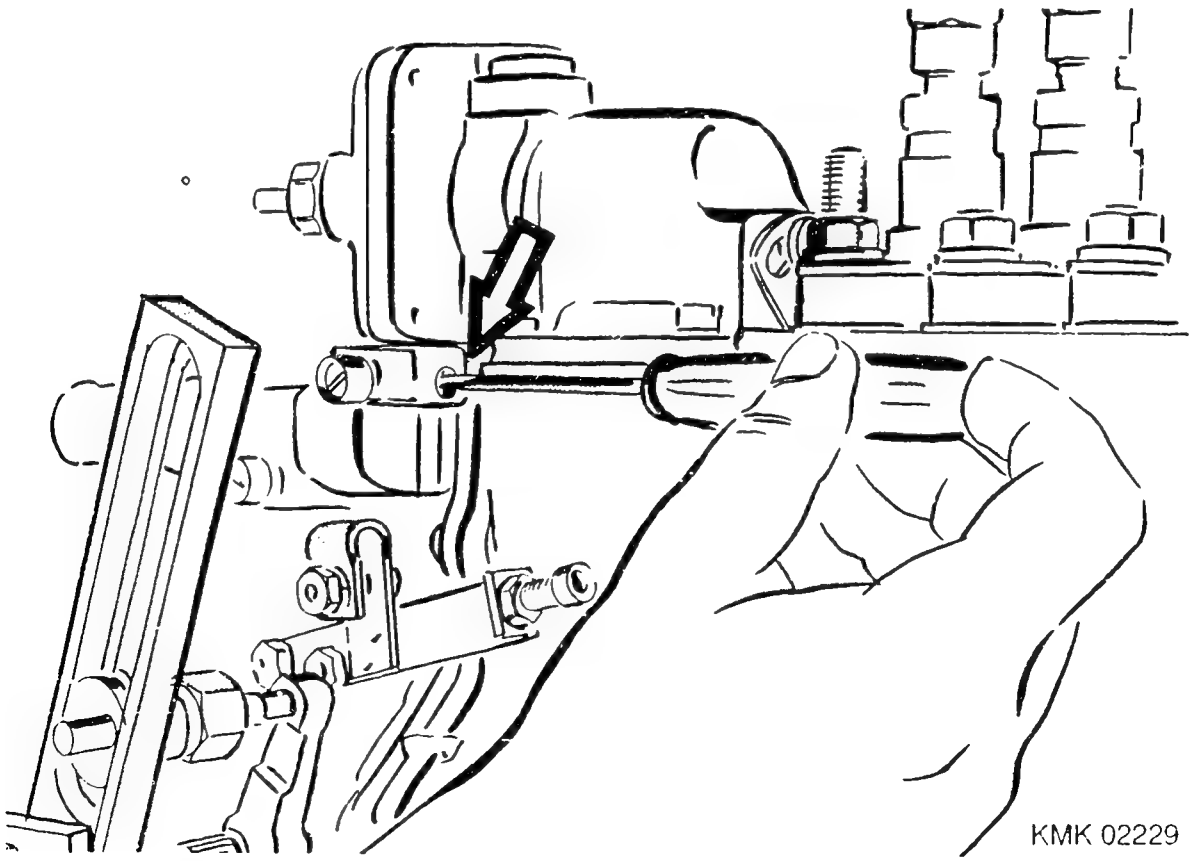
Continue: J05/1

GOVERNORS WITH INTERMEDIATE-SPEED STOP (ZDE)

* Breakaway setting

Loosen fastening screws at ZDE and then hand-tighten such that ZDE housing can be moved.
Control lever in full-load position.
ZDE barrel without air pressure.
Screw in adjusting screw (see picture, arrow) until ZDE breakaway as per test-specification sheet is reached.
Tighten fastening screws to prescribed tightening torque.
Seal fastening screws.

Continue: J06/1 Fig.: J05/2

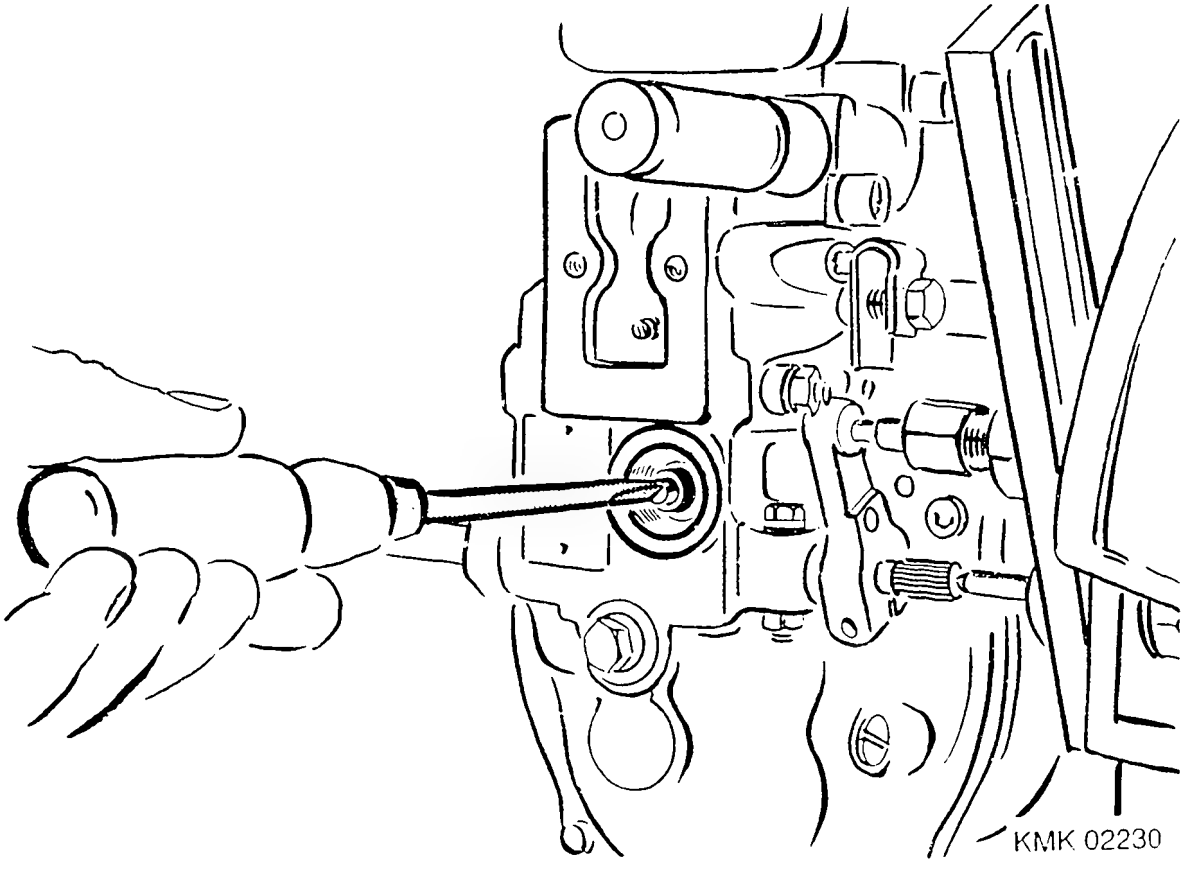


GOVERNORS WITH INTERMEDIATE-SPEED STOP (ZDE)

* Idle adjustment

Install idle adjusting screw with lock nut at idle stop plate.
Control lever in idle position.
ZDE barrel without air pressure.
Screw in adjusting screw until control-rod travel prescribed as per test-specification sheet is reached.
Secure adjusting screw with lock nut (see picture).

Continue: J07/1 Fig.: J06/2



GOVERNORS WITH INTERMEDIATE-SPEED STOP
(ZDE)
* Checking ZDE setting

Check breakaway and idle point with
and without air pressure (5...7 bar)
at ZDE barrel.
Test specifications as per
test-specification sheet
must be obtained.

Fit all closing covers with new seals.
Testing over.

Unclamp and seal pump.

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